* UMASS/AMHERST *
312066 0333 2746 3

SHOUT
SHARE
IT

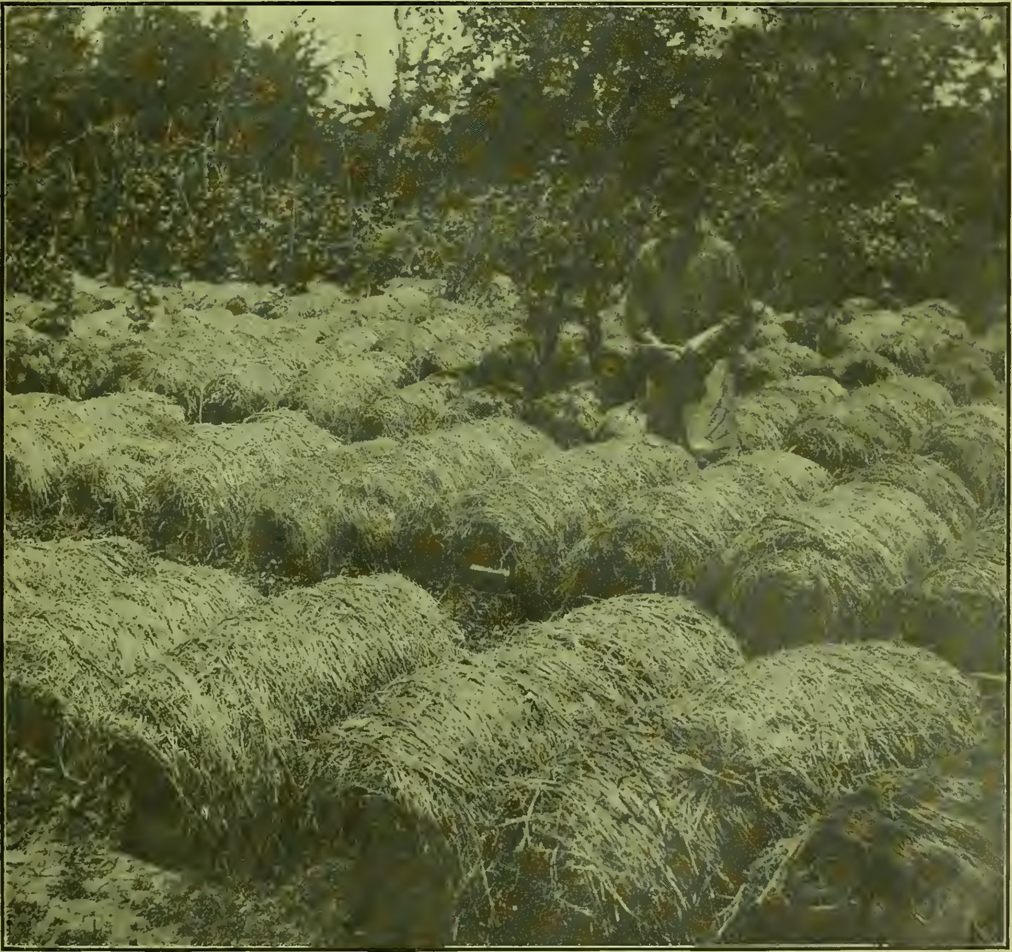
UNIVERSITY OF MASSACHUSETTS
LIBRARY

C
PER
SF
521
A5
v.58-59
1918-19

# AMERICAN BEE JOURNAL

JANUARY, 1918

JAN [illegible]



BOX HIVES OF SOUTHERN RUSSIA

A Russian Apiary in Lenkoran. The Cylindrical Hives are Sheltered from Cold and Heat by Long Grass.
[ See Article in This Issue. ]

F 638.05
Am3 + v.58-59

# *Special Subscription Offers*

OF THE

# *American Bee Journal*

IN COMBINATION WITH BEE BOOKS AND MAGAZINES

In order to give subscribers a chance to get a good Bee Book and effect a saving at the same time, we are giving below our special offers on such combinations.

Anyone desiring description and summary of different Bee Books should ask for our book catalog. It is sent free.

## The Most Popular BEE BOOKS

| | Book alone postpaid | A. B. J. 1 yr. and Book postpaid |
|---|---|---|
| Bee Primer | $ .15 | $1.00 |
| First Lessons in Beekeeping | 1.00 | 1.75 |
| Thousand Answers to Beekeeping Questions (Miller) | 1.25 | 1.75 |
| Langstroth on the Honey Bee—Revised | 1.50 | 2.00 |
| Langstroth—Reprint of Original Edition | 1.00 | 1.75 |
| Doolittle—Scientific Queen Rearing | .50 | 1.25 |
| A Year's Study in the Out Apiary (Doolittle) | .50 | 1.25 |
| Productive Beekeeping (Pellett) | 1.75 | 2.50 |
| Fifty Years Among the Bees (Dr. Miller). | 1.00 | 1.75 |
| Beekeeping (Phillips) | 2.00 | 2.50 |
| A. B. C. and X. Y. Z. of Bee Culture (Root) | 2.50 | 3.00 |
| How to Keep Bees (Comstock) | 1.00 | 1.75 |

Canadian Postage on Combinations, 15c extra; Foreign, 25c.

## Magazines in Combination

| AMERICAN BEE JOURNAL One Year— | |
|---|---|
| With Fruit Grower | $1.25 |
| With Green's Fruit Grower | 1.25 |
| With American Poultry Advocate | 1.25 |
| With Poultry Success | 1.25 |
| With Farm Journal (5 years) | 1.50 |
| With Successful Farming | 1.25 |
| With Farm and Fireside | 1.25 |
| With Ladies' Home Journal | 2.50 |
| With Little Folks | 1.85 |
| With American Boy | 2.00 |
| With Ohio Farmer | 1.25 |
| **With Country Gentleman** | **2.00** |
| **With Youth's Companion** | **2.75** |

Canadian and Foreign Postage Extra.

## OTHER BEE BOOKS

IN COMBINATION

| | Book alone postpaid | A. B. J. 1 yr. and Book postpaid |
|---|---|---|
| Advanced Bee Culture (Hutchinson) | $1.00 | $1.75 |
| Life of the Bee (Maeterlinck) | 1.50 | 2.25 |
| Manual of the Apiary (Cook) | 1.20 | 2.00 |
| Quinby's New Beekeeping | 1.00 | 1.75 |
| Townsend's Bee Book | .50 | 1.25 |
| Southern Bee Culture (Wilder) | .50 | 1.25 |
| Lore of the Honey Bee (Edwards) | 2.00 | 2.75 |
| Bee People (Morley) | 1.50 | 2.25 |
| Bee Master of Warrilow | .60 | 1.50 |
| Queenie | .75 | 1.50 |
| Alexander's Practical Writings | .50 | 1.25 |
| Biggle Bee Book | .50 | 1.35 |
| British Beekeepers' Guide | 1.00 | 1.75 |
| The Honey Bee (Cowan) | 1.00 | 1.75 |
| Irish Bee Guide | 1.10 | 1.85 |
| Waxcraft (Cowan) | 1.00 | 1.75 |
| Modern Bee Farm | 2.00 | 2.75 |

Canadian Postage on all Combinations, 15c; Foreign, 25c.

## Bee Paper Combinations

American Bee Journal, one year, $1
Gleanings in Bee Culture, one year, $1
**Both $1.50** Canadian postage 40c extra

American Bee Journal, one year, $1
Domestic Beekeeper, one year, $1
(Formerly Beekeepers' Review)
**Both $1.50** Canadian postage 20c extra

**All Three Bee Papers as above for $2.25**
Canadian Postage, 65c.

*Send us a list of books and magazines you want. We will quote our best prices.*

Our regular subscription prices on American Bee Journal are, 1 year, $1; 2 years, $1.75; 3 years, $2.50; 5 years, $4.

SEND ALL ORDERS DIRECT TO

***AMERICAN BEE JOURNAL, Hamilton, Ill.***

# Poultry Supplies

**Poultry supplies of all kinds, best automatic grain feeders, fountains, feed troughs, dry mash hoppers, bone mills, exhibition and shipping coops, leg bands, shell, grit, bone, meat, foods, and remedies ANYTHING YOU WANT. Also Pigeon, Kennel and Bee Supplies. Circular free.**

**Eureka Supply House**
**Box B-403, - Aurora, Illinois**

---

PATENTED
**WRIGHT'S FRAME-WIRING DEVICE**

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2.50, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calif.**

---

BUY

## THE FAMOUS DAVIS GOLDENS

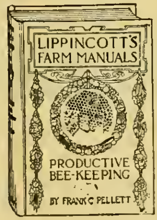
**And get big yields from gentle bees. Write for Circular and Price List.**

**BEN G. DAVIS,**
**Spring Hill, Tennessee.**

---

# Productive Beekeeping

By FRANK C. PELLETT



Frontispiece in color; 134 illustrations; 316 pages; handsome and durable cloth binding.

*A Practical Book for The Practical Bee Man*

Price, Postpaid, $1.75

AMERICAN BEE JOURNAL
Hamilton, Illinois

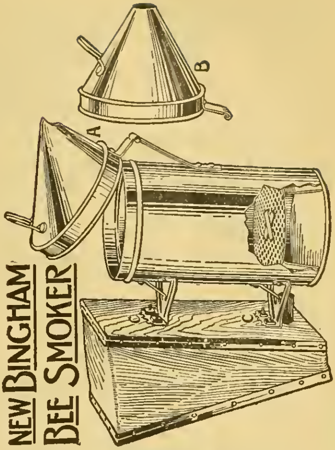
---

## New Bingham Bee Smoker

In 1878 the original direct draft bee smoker was invented and patented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly thirty-five years, and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name in the beekeeping industry.

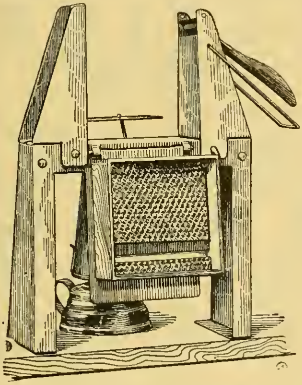
Bingham Smokers have been improved from time to time, are now the finest on the market, and for nearly forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies, or direct from the manufacturers.

Smoke Engine, 4-inch stove........28 oz. $1.25
Doctor, 3½-inch stove ..................26 oz. 1.00
Two larger sizes in copper extra.
Conqueror, 3-inch stove ..............23 oz. .85
Little Wonder, 2½-inch stove....16 oz. .65
Hinged cover on the two larger sizes, postage extra.



**A. G. WOODMAN CO.**
**Grand Rapids, Mich.**

---



## WOODMAN'S SECTION FIXER

A combined section press and foundation fastener of pressed steel construction. ONE OF THE GREAT ADVANTAGES this machine has over all others on the market in the putting in of top and bottom starters is, YOU ALWAYS HANDLE LARGE PIECES OF FOUNDATION. You know how hard it is to set small, narrow pieces for bottom starters. With this machine a large piece of foundation is set and the hot plate is again used to cut it off, leaving the narrow bottom starter. What is left of the large piece is then set for the top starter.

Price of machine, $3; with lamp, $3.40. Weight, 5 lbs.; postage extra.

THIS IS THE ONLY MACHINE ON THE MARKET from which the section always comes away right-side up, with the large piece or top starter hanging down. It does not become loosened in reversing, as with other machines.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

---

# Tin Honey Packages

**YOU WILL MAKE A MISTAKE** if you do not ask for our **Low Prices on** Friction Top Pails and Cans. We are **Saving money** for car load buyers and others of smaller lots. Why not you?

Our three-year contract is enabling us to make prices considerably under general market quotations. Let us hear from you, specifying your wants.

## Friction Top Tins

| | 2-lb. Cans | 2½-lb. Cans | 3-lb. Cans | 5-lb. Pails | 10-lb. Pails |
|---|---|---|---|---|---|
| Cases holding | 24 | 24 | --- | 12 | 6 |
| Crates holding | --- | --- | --- | 50 | 50 |
| Crates holding | 100 | --- | 100 | 100 | 100 |
| Crates holding | 603 | 450 | --- | 203 | 113 |

## Sixty Pound Square Cans

We are now booking orders and making shipments of 60-lb. cans from several different factories about the country. We believe it would be a wise idea to secure your supply early, as we have been told that the supply of tin plate will not take care of the demands. Ask for prices, stating quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

# THE GUARANTEE THAT MADE "Falcon" Bee Supplies Possible

The "Falcon" GUARANTEE. Every hive, every super, every crate of sections, every pound foundation every article, and every queen leaving the "Falcon" plant goes out with our "absolute satisfaction or money back" guarantee. For more than a third of a century we have stood behind everything we sell. If anything is wrong or not just what you thought it would be, we'll appreciate it if you write us, and we'll make it absolutely right at our expense. Our satisfied customers are to be found everywhere and are our best advertisement. "Once a customer always a customer," is synonymous with the name "Falcon"

The beekeepers' past experience when "short" should have taught him that it's a "wise move" to get hives, sections and supplies ready in the next two months. We will be glad to quote on "Falcon" supplies if you will send us an approximate list of what you will require for the coming season.

**Red Catalog, Postpaid** **Dealers Everywhere** **"Simplified Beekeeping," Postpaid**

**W. T. FALCONER MFG. CO., Falconer, New York**

*Where the good bee-hives come from*

---

# NOTICE

## HONEY WANTED HONEY

Do not forget when your crop of honey is ready for sale to send us a sample, state your lowest price, and also how it is put up. We are in the market for unlimited quantities, and will pay cash on arrival. Let us hear from you before selling your crop.

**C. H. W. Weber & Company**

**2146 Central Ave., - Cincinnati, Ohio**

---

# Tennessee-Bred Queens

## 45 Years' Experience in Queen-Rearing

## Breed 3-Band Italians Only

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to July 1 | | | July 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested .......... | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $13.50 | $1.00 | $ 5.00 | $9.00 | $ .75 | $ 4.00 | $ .75 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 | 1.00 | 5.00 | 9.00 |
| Tested .............. | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 | 1.50 | 8.00 | 15.00 |
| Select Tested .... | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 | 2.00 | 10.00 | 18.00 |

Nuclei (no queen) 1 fr., $1.50; 2 fr., $2.15; 3 fr., $2.75; 4 fr., $3.50; pure 3-band Italians. Select queen wanted; add price.

**Capacity of yard, 5000 queens a year**

**Select queen tested for breeding, $5.00**

**The very best queen tested for breeding, $10.00**

**JOHN M. DAVIS, SPRING HILL, TENN.**

---

**Don't Stop Advertising**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 85c.

**American Bee Journal, Hamilton, Illinois**

---

## POULTRY, FRUIT, BEE PAPER COMBINATION $1.50

Poultry and fruit are allied pursuits for the beekeeper. Here is a special combination of three papers which gives excellent reading at a low cost:

| | |
|---|---|
| The Fruit Grower .................................. | $ .50 |
| American Poultry Advocate ................ | .50 |
| American Bee Journal ........................... | 1.00 |

Our price for all three for one year is only $1.50. Or, if you want two poultry papers, add 25c to the above offer and get your choice of the following one year:

Reliable Poultry Journal, Poultry Success, American Poultry World, Big Four Poultry Journal, Poultry Tribune, Poultry Item.

Send all orders to

**AMERICAN BEE JOURNAL, Hamilton, Ill.**

# *Why Order Early?*

With the exceedingly high price of honey and the urging on the part of the State Department for production of every ounce of produce possible, you, as a beekeeper, are going to do your part and have probably already made up your mind to increase your holdings in bees to the limit of your capacity in caring for them.

Possibly, however, you have lost sight of the fact that it is greatly to your interest to get in your orders for bee supplies now.

**Freights are Slow** The congestion of last year may be repeated. Many beekeepers who ordered their supplies in February were barely able to get delivery in time for the white clover flow. Others had to cancel orders, and still others had supplies arrive after the critical storing period was past. *You cannot afford to let your bees wait a day on delayed freight shipments.*

**Early Order Discounts Save You Money** We want as many early orders as possible. This gives us less of a rush in spring, when a too large proportion of beekeepers order their supplies. This is why we can make a closer price for an order sent in before the new year opens. If your banker were to offer you 15 per cent interest on your deposits you would certainly grab the chance. A three or four per cent discount on supplies for ordering them three months earlier than usual means sixteen to twenty per cent interest on your money for the year, and you have your goods on time, without fail.

*Send us a list of your requirements.*
*We are in a position to give you a*
*very close estimate for early order.*

## Are You Throwing Money Away?

No? But are you throwing away old combs, small lots of cappings, or else beeswax scrapings and propolis from the tops of your frames when you clean them? If not, perhaps you are melting up your combs in an old-fashioned way and getting only about half the wax out of them.

Many beekeepers this year secured their season's supply of

## DADANT'S FOUNDATION

by sending in their combs and cappings to be rendered into beeswax and made up into foundation. Our high-pressure steam outfits get all the wax possible, save these same beekeepers an unpleasant job and return more beeswax in the shape of foundation than they could get by the extra work themselves. If you prefer, we will pay you *Highest Cash Price* for all beeswax rendered.

*SEND FOR OUR TERMS*

## *DADANT & SONS*

*HAMILTON, ILLINOIS*

**WE WANT BEESWAX ... ASK US FOR OUR BEST PRICES**

# *ANTICIPATE Your 1918 Bee Requirements NOW!*

**HELP US CO-OPERATE WITH THE GOVERNMENT BY ORDERING YOUR BEE SUPPLIES FOR NEXT SEASON NOW!**

Transportation conditions may not permit of prompt shipments later on. Now, of all times, the Beekeeper **should not put off until tomorrow what he can do today.** You owe it to your country and to yourself to prepare at once for the gathering of the nineteen eighteen crop.

**Have You Enough Hives?**
**Have You Enough Supers?**
**Have You Enough Frames?**
**Have You Enough Sections?**

And have you enough of the rest of the things you will need?

THE LEWIS FACTORY IS NOW OPERATING NIGHT AND DAY TO TAKE CARE OF THE SEASON'S DEMANDS

Help us while we are helping you. Place your orders now, so manufacturers and dealers can help their country --- your country, you and themselves, by preparing now for your needs.

THE NEW LEWIS CATALOG
will be out this month

## G. B. LEWIS COMPANY

*Manufacturers of Beeware*
*WATERTOWN, WISCONSIN*

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 1 HAMILTON, ILL., JANUARY, 1918 MONTHLY, $1.00 A YEAR

# SWEET CLOVER AS A FARM CROP

## Items of Interest About a Plant Which Was Formerly Regarded as a Weed, Now Generally Grown for Forage---Photographs From U. S. Department of Agriculture

WHEN our older readers were beginners in the beekeeping business it was a popular thing for the beekeepers to buy sweet clover seed and stealthily sow it along the roadsides after night. So general was this practice, that, whenever the plant appeared in a new locality, it was generally charged up to the beekeepers living near by, and they were very often guilty of having sown it. So great was the prejudice against the plant that much ill feeling developed in some places because of it. It even went so far that in some States it was placed on the list of noxious weeds and its eradication required by law. When Frank Coverdale, the well-known Iowa farmer who has done so much to popularize sweet clover, first sowed it in his own fields, neighbors called on the county attorney to enquire whether he could not be prosecuted for sowing weed seed. For a generation the beekeepers kept up the fight, and constantly preached that sweet clover was not a weed, but a valuable forage plant. It remained for men like Coverdale, who were both beekeepers and farmers, to prove the assertion and convince an unwilling public, by making as much profit from sweet clover pasture or forage as the neighbors could make from other farm crops.

It was on poor lands which had been worn out by bad tillage, that the plant made the best showing. When lands which had been lying idle, because no other crop could be raised profitably, were made to produce good yields of milk, butter and beef from sweet clover, the neighbors were inclined to give it a trial on their own poor lands. The change in sentiment has been very marked during the past five years, and now the demand for sweet clover seed is greater than the supply, and will continue so for several years, since the area where it is being grown is constantly being enlarged There are large areas where sweet clover is grown generally as a farm crop in Kentucky, Nebraska and Kansas, and to a lesser extent in many other States. The increased acreage of this plant will double the possibilities of honey production in most any locality, and, in numerous instances, will treble and quadruple it, sometimes twice over. In the early years of his experience, Coverdale kept bees in several out-apiaries, so that much travel back and forth was necessary. Since sweet clover has become so generally grown in his locality, he is able to keep three hundred colonies in one yard in his orchard, where they are under his immediate care at any and all times. After traveling over much of the central west, it has become apparent that within a few years the beekeeping possibilities of parts of Kansas, Nebraska and South Dakota, will be almost inexhaustible because of the increase of this plant.

Last spring, on visiting Falmouth, Ky., I was amazed at the stories they told of what sweet clover had done for that region. One of the pioneer growers was E. E. Barton, and his experience with it sounded like a fairy tale. Mr. Barton said that following

THE SWEET CLOVER LEAF

A FIELD OF SWEET CLOVER JUST BEFORE BLOOM

the civil war, most of Pendleton county was given over to tobacco growing, with little live stock, and not much rotation of crops. It was a hill country and although it had a fertile soil over a clay subsoil, the heavy rains soon washed away the shallow surface soil, and one farm after another was abandoned. Hundreds of farms were abandoned and many of them were sold for taxes, because no buyers could be found. More than a third of the population left the county, and the farmers who remained had hard lines to make ends meet. Sweet clover was stealthily sowed, probably by beekeepers intent on increasing the bee pasturage. At first it was regarded with disfavor and fought as a dangerous weed.

Mr. Barton told me how he came into possession of a farm somewhat against his will because the owner could not pay the mortgage. He tried renting it, and the tenant was unable to make a living, much less pay the rent. After it had been abandoned, he went to great trouble to keep down the weeds, especially sweet clover. Then came a year of drouth, when there was very little feed for the cattle and they were turned into the roads to graze. Even there, there was but little except the sweet clover, which by this time was rather common along the roadsides. It was soon noticed that the cows were eating the sweet clover with relish and doing well. Then somebody tried an experiment by sowing it in a field. It thrived, the cows liked it and the milk flow was increased. Mr. Barton by this time was quite ready to profit by the experience, and within five years the farm which would not grow grass, was producing good crops. He bought more abandoned farms and sowed them to sweet clover, and his neighbors began to do likewise. One by one the farmers came back to their abandoned farms, new settlers came in, and everybody began to grow sweet clover. Now there are fifty thousand acres of it in that county. Ask any farmer you meet on the streets of Falmouth what he thinks of sweet clover, and he will tell you such tales of rebuilt fortunes from a combination of dairy cows and sweet clover as you never expect to hear. There are now shipped from the county about half a million pounds of seed yearly, besides thousands of dollars' worth of dairy products every week. They find that an average of 300 to 600 pounds of hulled seed per acre can be secured from the white variety and 500 to 700 pounds of the yellow. An average yield of from $40 to $100 per acre is the return from the sweet clover, according to local reports picked up on the street. Now one finds evidences of prosperity on every hand. The farmers have fine homes, automobiles, and money in the bank.

### Soil Requirements

There is no forage plant that will succeed on such a wide range of soil conditions as will sweet clover. It will succeed under unfavorable conditions on the heaviest clays and on light sand. It will grow on hardpan and on gravelly and stony land unsuited for general cultivation. It does well on soils too wet for either alfalfa or red clover and on soils so dry that neither of these will succeed. It will grow on land so poor and devoid of humus that no other clover or grass will grow. It is the greatest soil builder known, and now that the public has finally accepted the fact that it is not a noxious weed, it will shortly be used to redeem untold thousands of otherwise waste land. It grows all the way from sea level to the mountain sides, and is spreading in the semi-arid sections of Colorado and other western States, where the annual rainfall is very light.

In the October number of this Journal has already been told the story of the sweet clover region of Alabama and Mississippi. In those States sweet clover has spread over thousands of acres of land, which had been abandoned for agricultural purposes; and it is not only furnishing abundant pasturage to the bees, but is restoring the fertility of these worn out plantations.

The growth of the plant, however, is no longer confined to the roadsides and worn out fields; but farmers are growing it successfully and profitably on lands worth $200 per acre in Iowa and Illinois, because it pays them to do so. In some cases, the railroad companies have discovered that sweet clover growing along the right of way is the best possible insurance against erosion of the roadbed. A heavy growth of sweet clover protects the banks from the washing of heavy rains, as no other plant will do. In places, one can see a continuous strip of sweet clover for miles and miles along the railroads. It would seem the part of wisdom for the beekeepers' associations to bring this fact to the attention of the men in charge of keeping the lines in repair, wherever possible. Once established along the railroads, it is bound to spread more or less along the byroads and into the fields, thus in-

The Field in the foreground has just been grazed by stock which is now being turned into the field of sweet clover in the background.

creasing the supply of forage within reach of the bees.

One of the most useful purposes which sweet clover serves is to smother out noxious weeds. So persistent is the plant where sowed in waste places, that there are few weeds which can compete with it. Where bad weeds are present in old lots, along roadsides, etc., the easiest way to eradicate them is by sowing sweet clover freely. Within a few years the sweet clover will generally crowd them out. In spite of this fact, sweet clover is itself one of the easiest plants to destroy. Since it only lives two years and must come again from the seed after that time, all that is necessary to clear the ground of sweet clover is to cut it low when in blossom and before the seeds are formed.

Where there is difficulty in establishing alfalfa, sweet clover is often grown in advance to establish the nitrogen gathering bacteria, which are peculiar to the leguminous plants. Following sweet clover, there is usually little difficulty in getting the alfalfa to grow, if the seed bed is carefully prepared. However, many farmers who have been growing both plants, are of the opinion that sweet clover is the more profitable of the two, and that it can be handled successfully with less difficulty.

There is no pasture crop which will support as many cattle or other livestock as will sweet clover during the second season of its growth. This year a small experimental plot of little more than an acre yielded two big loads of hay. The plants were permitted to get a good start after the hay was cut, before pasturing, then two cows and a horse were turned in for the rest of the season. In addition to furnishing abundant pasture for three, more than twenty bags of seed were secured. Allowing $15 a ton for the hay, $1 a month per head for pasture, and $3 a bag for the seed, all very conservative figures, the crop returned about $96 per acre. While this small plot was experimental in the nature of things, there are numerous farmers who have received more than $100 an acre for seed alone.

The next article will give details of seeding, cutting for hay and harvesting the seed crop.

SWEET CLOVER FED

## Inversion

Interchange of letters on Inversion in transferring, between J. F. Diemer, of Missouri, and the Editor.

Liberty, Mo., Sept. 9, 1917.

Friend Dadant: I am experimenting a little on transferring bees from box-hives to 8-frame hives and I want your guess as to what they will do. I bought 38 colonies in box-hives 14x14x16 inches high. White clover flow was over, but the boxes were full of honey and brood. On top are some holes, which I covered with wire screen to give them air, as my plan was to use these box-hives for hive-stands for the 8-frame hives by turning them upside down, which puts the honey at the bottom and the brood at the top. I bored a 1-inch hole in the middle of the bottom-board of the 8-frame hive, and after turning the box-hive top down I placed the 8-frame hive on top; placed therein one frame of brood and seven drawn combs and full sheets and closed all cracks. The bees will be compelled to use the regular entrance to the 8-frame hive. These bees are 16 miles from home, in the Missouri River bottom. The best fall flow we have ever had is on now and I believe they will carry or move the honey to get it above the brood. This is my guess. What's yours?

Yours very truly,
J. F. DIEMER.

Sept. 17, 1917.

Friend Diemer: I would make a guess similar to yours on those hives and affirm that they would carry the honey up to the movable frame hive. But the experience of the old country beekeepers is rather against such a conclusion. In a province of France which they call "Gatinais" they tip their skeps over in the same way, placing another skep on top of the inverted skep, "mouth to mouth," as you might say. The result is that they fill the lower skep full of honey. Probably the result with you will depend some upon how much flow there is. If you have a very good flow, they may fill both. Of course, if you use full sheets in the upper hive it may be filled first.

Since you have told me all this and have asked for my guess, I wish you would write me when the season is over and let me know just what they did. We hope you are having some flow now. We have a flow from heartsease and Spanish needles just now, and the honey they store is just like liquid gold.

Your old friend,
C. P. DADANT.

Liberty, Mo., Nov. 4, 1917.

Friend Dadant: Twenty of those colonies transferred themselves from the box-hives to the movable-frame hives, but left the box-hives nearly full of honey. The first cold spell we had here, (16 degrees above) drove them all up into the frame hives, so it was easy to remove the box-hive, all clear of bees. Eighteen colonies not only stayed in the box-hives, but removed nearly all the honey from the frame hives down to the box-hive. I suppose the queen stayed below, because there was plenty of room to lay.

Yours truly,
J. F. DIEMER.

Nov. 8, 1917.

Friend Diemer: Your letter to hand. This shows that the old-time beekeepers of the Gatinais were right in expecting the lower hive to remain full of honey. This operation was called "culbutage," or inversion. Some forty years ago the pages of L'Apiculteur were full of this method. But they had to acknowledge that it left very weak colonies in the upper story. The men who practiced it usually bought a fresh lot of bees every spring to replace those they lost by that method. We hope you will winter yours well.

Of course, at the time when this method was followed they had only straw skeps. If the colonies did not have enough left in the upper hive for winter there was no practical way of supplying them. With movable frame hives the case is different. But your experiment may prove of some use to many of our readers.

Best wishes,
C. P. DADANT.

(Mr. Diemer now writes that he is going to try to transfer those bees to movable frame hives by turning them, bottom up, in January, under a hive partly full of combs of honey. We will report on this later.—Ed.)

**Death of W. M. Whitney.**—We regret to inform our readers of the death of Mr. W. M. Whitney, which occurred in Chicago two weeks ago. Mr. Whitney was a very familiar figure at the annual meetings of the Chicago Northwestern Association. A retired lawyer, in 1892 he began to keep bees and has since been exceedingly interested in them.

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
First Nat'l Bank Bldg., Hamilton, Ill.
Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

**IMPORTANT NOTICE**

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec17" on your label shows that it is paid to the end of December, 1917.

SUBSCRIPTION RECEIPTS.—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which show that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

We are just now making plans for an extended trip through Texas by our staff correspondent, Mr. Frank C. Pellett. He expects to start in the latter part of February and be gone six or eight weeks. We are anxious to have him visit as many beekeepers as possible and see every important honey-producing region of our largest State. His journey will be entirely planned by the Extension Department of the Texas Agricultural College, under direction of Prof. F. B. Paddock, the State Entomologist at College Station.

### Sugar for Feeding Bees

A few days ago Mr. E. R. Root, editor of Gleanings, wrote Dr. E. F. Phillips, Apiarist in charge at the Department of Agriculture at Washington, mentioning the inability of beekeepers to secure sugar for feeding bees where there was a shortage of honey and suggesting possible relief by interviewing the Food Administrators. Dr. Phillips immediately replied with the following telegram, both to Mr. Root and our editor:

> "Food administration, realizing importance of saving bees, has willingly endeavored to help beekeepers secure sugar in urgent cases reported, but no announcement of this made, as shortly after January 1 sugar should be generally available. Beekeepers can save colonies by using hard candy or syrup on warm days.
>
> "E. F. PHILLIPS."

This is satisfactory information for the beekeepers who may need to buy sugar for spring feeding. The colonies that were not fed in fall, if short, would be in poor shape to take food by this time.

The United States cannot afford to do less for the beekeepers than the governments of Europe. We see by the European magazines that France allows 3 kilograms per colony (6.6 pounds) and Switzerland 8 kilograms (17.6 pounds.) The French were paying 1.50 francs (30 cents) per kilo and the Swiss 2.50. We are much better off and the shortage is more imaginary than real.

### Carniolan and Banat Bees

We have a request from an experimental station for the addresses of parties in the South having pure Banat bees, also for Carniolans and Caucasians.

It is the intention of the experimenters to test ten or a dozen colonies of each kind of bees side by side for honey gathering, swarming, wintering, etc.

We would be glad to have subscribers who are able to furnish pure bred queens of these races early write us so that we may give their addresses to the parties in question.

### Russian Beekeeping

The high value of the gray Caucasian bee as a producer of honey is quite readily shown by the large number of bees kept in the several States of Southern Russia. The cuts which we are reproducing from time to time from this region show that the honeybee has been, from time immemorial, one of the resources of that country.

We have been in correspondence with Professor Gorbatcheff, manager of the experimenting apiary of the "Station Sericicole" (silk culture station) of Tiflis. But at this time, while the world is aflame, postal intercourse between America and Russia is rather slow. A letter addressed to this scientist, from here, April 18, was 104 days on the way. His reply took 86 days to reach us. At this rate only about two letters a year could be sent and the reply received. But ought we not to consider ourselves lucky that the letters did arrive at all? However, it is noticeable that very few letters get lost, in spite of the Kaiser's piratical undersea war.

Professor Gorbatcheff sends us his explanations in the French language and we translate them for our readers. He remarks that "in Tiflis the people well acquainted with the English language are about as rare as Russian scholars in the United States." French, for them as well as for many other nations, is the international tongue.

We are glad that our Tiflis correspondent seems quite optimistic regarding the Russian position. He says: "We thank you for the compliments you pay us concerning our revolution. We are proud of having shaken off the autocratic yoke and to have stepped up to the ranks of free people. We are delighted with the position of America in this terrible conflict. Your wonderful country is showing the force of its elan and the greatness of its soul, well-known qualities of the American nation. We are not the enemies of democratic Germany, but we despise and hate the sanguinary despot and his militarism which is trying to oppress the world."

Let us hope that the time is not distant when we may have peace and commercial intercourse with the breeders of the Caucasian bees. The contribution of Professor Gorbatcheff will be found in another column.

### The Chicago Northwestern Meeting

The editor and his wife left home on November 28, with two purposes in view. They wanted to spend Thanksgiving with their youngest daughter, Harriette, who is now Mrs. F. A. Bush, wife of a lieutenant in Uncle Sam's army, stationed at Camp Grant, near Rockford. Thence the editor went to the Chicago meeting, to return again to Rockford and from there reach the Des Moines Convention. It had also been his intention to get to Michigan, at Saginaw, and to Wisconsin, at Madison. But his endurance in travel was not equal to the task and numerous occupations at home also compelled him to shorten the trip.

The Chicago Northwestern meeting was only fairly attended, some 35 beekeepers being present. But they were all in great earnest. A very interesting talk on honey sales was given by our old friend and honey merchant, R. A. Burnett, of Chicago. Mr. Burnett, who for probably forty years or more has handled shipments of honey, stated that he had never known the honey market to be so cleanly swept as it was during the present fall. Remnants of honey from previous crops which had been thought unsalable had been cleaned out for export. But the high price was to some extent lessening the demand.

The consensus of opinion was that there is going to be quite an increase in the proportionate amount of extracted honey produced, because of the proportionately greater advance in the price of it.

In a discussion upon the use of feeders above the brood chamber, objections were made to them because of the deperdition of heat. Br. Bull, the secretary, explained that he avoided any loss of heat by using over the brood frames a piece of roofing paper, cut of the exact size of the top, with a hole in it just sufficient to enable the bees to reach the food.

A number of resolutions were passed urging the building of a Honey Building at the Illinois State Fair grounds, the increase of State support to the beekeepers' associations and the greater advertising of honey as food.

The election of officers resulted in the selection of the same men as before, E. S. Miller, President; Edward Hassinger, Jr., Vice President; John C. Bull, Secretary-Treasurer.

Although the crop was reported as very meagre among the members, the high price of honey has evidently worked in favor of more production and the general tendency proved to be in favor of the cultivation of a greater number of bees. During the coming years beekeeping will be in the ascendency.

## The Iowa State Meeting

The meeting at Des Moines was as well attended as any previous meeting. This evidences the advisability of thorough advertising. The efficient secretary, Hamlin B. Miller, kept the matter before the public for several months and did not spare printer's ink.

One of the most interesting features was the address by E. R. Root on the Demuth plan of wintering mentioned in both November and December numbers of Gleanings. The Demuth plan, described in a few words, is the putting of the seven best combs of a colony into a box in which they stand on end. This box, which is inexpensive to make, is then put inside of a two and one-half story ten-frame hive. This practically makes a winter packing body, as there is room for several inches of forest leaves between the two, and in spring the bees can be readily retransferred into the ten-frame hive. Instead of an expensive winter case, the beekeeper supplies only a small box of thin lumber. The advantages of the system are apparent, the only objection possible being the necessity of transferring the bees in fall and spring, which ought to be done without much loss of time.

Dr. H. E. Ewing, professor of entomology at Ames, gave a very interesting talk on the anatomy of the bee.

J. W. Tinsley gave an address on "painting foundation with hot wax" which convinced us still more of what we have said in the December number of the American Bee Journal, page 410, that the proper weight of foundation to use, in order to supply the bees with all the wax they need to build the entire comb would be about six sheets, Langstroth size, to the pound. The weight required by the trade is 7 or 8 sheets.

Another scientific address was given by Professor H. R. Werner, also of Ames, upon the determination of sex in bees, showing the development of the egg and the manner in which fertilization changes the sex of the undeveloped eggs. We should very much like to give a detail of this very scientific address, but it was accompanied by chalk drawings, without which the matter could hardly be made intelligible. Such an address must be heard to be appreciated.

Still another address by a scientist of Ames College was given by Professor Atkins, Assistant at the Experimental Station. This was a description of the three best methods of queen rearing, the old Alley method, the Doolittle cell-cup method and Dr. Miller's latest method described by the American Bee Journal in August, 1912. Never before have we heard so thorough and exhaustive a description of the best practical ways of rearing queens.

Professor F. Eric Millen, apiarist in charge at Ames, described and announced several short courses in beekeeping and secured the promise of the editor of the American Bee Journal to attend the May short course, to address the students. Those interested in these short courses should write him to enquire about the dates and particulars.

Papers were read by Dr. Bonney and others. A most interesting short paper by a lady, Mrs. Clara T. Noel, was secured for our Journal. It will be found in the Woman's column.

Mr. Pellett gave a lecture on "Beekeeping North and South," with lantern slides in the evening of the first day.

The election of officers resulted as follows:

President, Professor F. E. Millen, of Ames; Vice President, W. S. Walker, of Iowa Falls; Secretary, Hamlin B. Miller, of Marshalltown; Directors, C. H. True, Mrs. Clara T. Noel, Bert Brown.

The advancing price of honey was discussed at length, and while the unusual war conditions are known to be in great part responsible for the advance, yet it is the general opinion that honey will gain in public favor through the temporary shortage of sugar. The beekeepers are therefore generally planning to increase their holdings and the teaching of apiculture in the colleges is considered as more and more necessary, especially in order to do away with ignorance among owners of apiaries. This ignorance is held to be one of the greatest obstacles to the eradication of foulbrood.

Beekeepers, join your State Association. It will not only help you in producing a greater amount of honey, it will also help you in securing fair prices for it.

## New Zealand Beekeeping

The New Zealand Farmer Stock and Station Journal, in its October number, contains a number of articles on beekeeping and, among others, a description of sacbrood after Dr. G. F. White. This is written by one of the old veterans, I. Hopkins, of Aukland. Mr. Hopkins writes us: "I intended to have visited my native country, England, in 1915, had war not been on. My wife and I were going via Canada, and I had a very kind invitation to visit Dr. Phillips at Washington, who was to take me to some of your principal beekeepers. I am afraid if the war don't end soon I shall be too old, as I passed into my 81st year last month."

# Experience With Package Bees 1917

By C. W. Aeppler.

The spring of 1917 was a very trying one to beekeepers in most parts of the United States. The pound package men in the South experienced great difficulties in filling orders for package bees. On account of the late, cold spring, the colonies did not build up normally, necessitating a delay in filling orders. As a result, many packages were received in the north too late to yield a surplus, or even enough for stores to winter on.

Our packages were ordered to arrive not later than a certain date. However, on account of the weather conditions it was impossible for the shippers to fill orders when promised. Consequently, packages were received all the way from April 20 to June 18. Packages that arrived early were received in good condition. Those that arrived after May 15 arrived with a high percentage of dead bees. Warm weather en route was undoubtedly responsible.

As soon as the packages were received, they were taken into the cellar and the cages thoroughly painted with thick sugar syrup. The bees took this up readily and were therefore in good condition to release onto drawn combs.

All hives had been prepared in advance. Each hive contained ten frames, some of which contained honey and pollen. The latter is as important as the former, since little pollen is available as early as the middle of April in this part of Minnesota. These combs of pollen and honey saved from the previous season, serve as a regular bonanza in getting packages built up. A great deal of fussing with sugar syrup is eliminated and a more balanced ration is available for larval development than where sugar syrup is provided, and the chance taken by the beekeeper that pollen may be available when his pound packages arrive.

In releasing the bees onto the combs, the following method was employed: An empty deep super was placed over the brood-chamber. One side of the package was opened where the wires came together. The directions that come with the package usually do not advocate this method, but it was found that the bees left the cages more readily, especially early in the spring. Sometimes it happens that the bees begin to build comb within the package and several were found where the queen had begun to lay en route. In the latter case it is invariably true that the bees will not desert the package and go below. It is then necessary to shake the bees out of the package onto the combs. This should be done late in the day, as the excitement may bring on robbing in the apiary. Package bees received early in the season are not nearly so apt to build comb enroute as those received later in the season. The empty supers can usually be removed within 24 hours.

It is unwise to examine the bees to make sure that queens are present until they have had time to lay. Little is gained and the bees are more quiet on the combs after two or three days' rest. If any queens are found missing, the shipper should be notified immediately and they will be replaced free of charge. It is unwise to purchase packages without queens. The bees are restless en route and in every case arrive in poorer condition than when queens are present.

Shipments of two-pound packages were received on the following dates: April 20, May 15, May 30 and June 18. The following results were achieved with these packages. The results given are averages of the packages in terms of surplus extracted honey:

| Date Received. | Surplus Honey. |
|---|---|
| April 20 | 75 pounds |
| May 15 | 30 pounds |
| May 30 | 10 pounds |
| June 18 | 0 pounds |

Those received June 18 gave no surplus, and in every case not enough was stored to winter on. As there was no fall flow this year in this part of Minnesota, these colonies had to be fed to prevent their starving in September and enable fall brood rearing to go on. These last packages also did not build up to

Mrs. Aeppler beside a big swarm which issued Aug. 7, from a two-pound package bought on April 20.

proper strength for most successful wintering.

Our experience with one-pound packages is not so extensive, as it was assumed that they are not quite populous enough to build up in the cold spring, such as we have here in Minnesota.

The one-pound packages were received on the following dates: April 20, May 15 and June 15. The following results were achieved in the way of surplus extracted honey:

| Date Received. | Surplus Honey. |
|---|---|
| April 20 | 25 pounds |
| May 15 | 0 pounds |
| June 15 | 0 pounds |

The packages received May 15, although yielding no surplus, gathered enough to winter on. Packages received June 15, in addition to gathering no surplus were supplied with brood from other colonies after the honey flow in order to build them up properly. In other words, they were not worth very much more than the queens that came with them. Nuclei made up of two frames of brood with adhering bees about June 10 and supplied with a virgin queen reared in our own apiary, gave better results than one-pound packages received at about this date.

The reader must not be misled and be made to believe that every season would give the same results. As stated heretofore, these results were obtained in 1917. The spring was abnormal in every way and the weather cold up to July 1, so much so that corn at this date was no farther advanced than it is June 15 in normal years, and clover in almost like proportion. So from the experience of the past season it is safe to conclude that the two-pound package is a better proposition than the one-pound. At least from a dollars and cents standpoint this is true, and when the northern beekeeper cannot realize a fair margin of profit on the venture, he is not apt to be a supporter of the package business in the future, which in turn means a lessening of orders received by the package men of the south. On the average, the two-pound package costs one dollar more than the one-pound package. However, this extra investment of one dollar means the production of several dollars' worth more of surplus honey. Furthermore, the two-pound packages build up to good-sized colonies more quickly than do the one-pound. Unless the packages build up to good-sized colonies they are a poor investment at their best. Our experience is that about 15 per cent of the queens received with the packages fail and are superseded within the first month. This, of course, lessens the profits from such a colony to a marked degree. It is highly probable that a certain percentage of queens are injured in transit, even in combless packages.

As stated before, slightly different results might be obtained in a normal season, but it is improbable that the results would vary radically.

### Conclusions

The combless packages have come to stay. It is highly important to receive them early, as near the middle of April as possible at this latitude. The financial returns per package are in direct proportion to the earliness of arrival. A two-pound package with a good queen received the middle of April is about equal to one of our cellar-wintered colonies, and in some cases will actually yield more surplus honey per colony. In our experience this is, however, only true when a very prolific queen is present, as we aim to have good queens present in every colony wintered over.

Supplying combs saved from the year before, containing pollen, is worth quite as much as supplying combs containing honey. The latter are, of course, essential, or their equivalent in sugar syrup, but the former are very valuable in securing rapid brood-rearing. As it takes time to build up a package of bees to a full colony, this feature should not be overlooked, provided combs of pollen are available for the purpose.

Forreston, Minn.

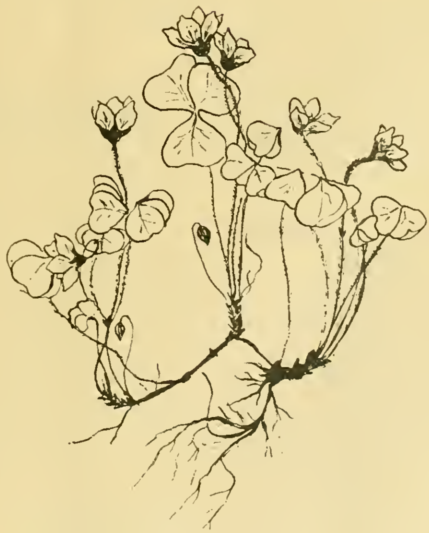
## Shamrock Versus White Clover

YESTERDAY, while glancing through the pages of an encyclopedia, "The New Practical Reference Library," I noticed among the pictures of National Flowers the "shamrock" as the emblem of Ireland. This was represented, in the colored plate, by white clover leaves and blossoms. The question at once arose in my mind: Is the shamrock a real clover and a honey-producing plant?

Although I well knew the shape of the shamrock leaf, I had never thought of it as a possible honey-plant. Some of our readers perhaps do not know that the shamrock's reputation and its adoption by the Irish as a national flower are due to the legend that St. Patrick, while preaching to the heathen followers of Druidic faith, 1500 years ago, used the three leaflets on a single stem as the exemplification of the Christian Trinity.

Three plants, besides the white

DEMUTH'S WINTER CASE
(Gleanings in Bee Culture)



THE OXALIS ACETOSELLA, COPIED FROM BONNIER'S "FLORE" clover, are credited with the reputation of being the original shamrock, the *Trifolium minus*, a very small clover; the water cress or *Radicula Nasturtium-aquaticum*, and *Oxalis acetosella*, the plant which, we suspect, is the true shamrock.

But why should we contradict the "New Practical Reference Library" and its very positive picture of a white clover shamrock? The Standard Cyclopedia of Horticulture, a very modern and apparently accurate work, says that half of the world calls the white clover "shamrock" and the other half calls the oxalis by that name. It quotes Sowerberry as stating that the oxalis "is in perfection on St. Patrick's day."

However, Gaston Bonnier, in his immense and admirable work, "Flore Complete" of France, Switzerland and Belgium, of which only three volumes have so far been published, says that the trifoliate leaf of white clover appears in the arms of Ireland, although St. Patrick used a trifoliate leaf of *Oxalis acetosella* as a symbol of the Trinity.

The most weighty argument in favor of the latter plant as the true shamrock lies in its being a native of Ireland, while white clover was introduced there, they say, much later than the time of St. Patrick, which was about the year 430. So we shall take sides against the New Practical Library until we find out better.

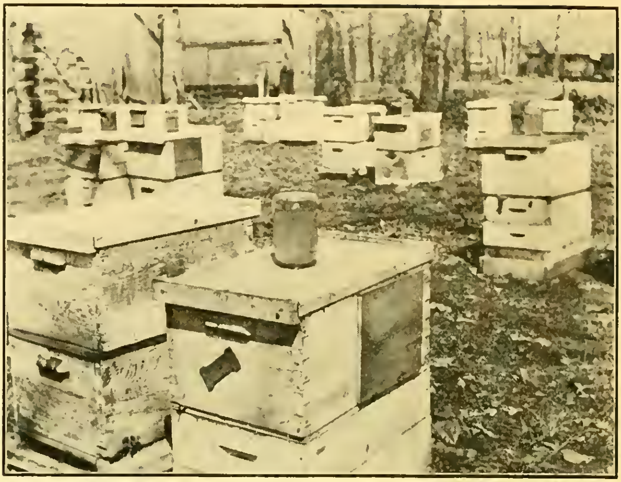
This must be of interest to the people of Ireland, especially the beekeepers. White clover is a honey-plant, but the little oxalis, though pretty, has no reputation for sweetness, but rather for sourness, as would indicate its denomination "acetosella" and its popular name of "wood sorrel." What do our friends of the Emerald Island have to say on the subject? Does the shamrock yield honey?

By the way, it may not be amiss to say that Bonnier's "Flore Complete" gives descriptions and colored photogravures of 60 different clovers *(trifolium)*, while our Gray's Manual describes only 14. Bonnier's Flore, of which only three volumes have yet appeared, will be a wonderful work, if a cessation of present abnormal European conditions ever permits its full publication, in ten or twelve volumes.

## A Feeder for Cell-Building Colonies

THE queen breeder must be able to control the activities of his bees to a much greater extent than the honey producer. From the time the first batch of cells are grafted in spring until the last cells are finished in the fall he must turn out queens at a fairly steady rate. It is a rare locality where honey will be coming in from natural sources through all this long period. The queen breeder, accordingly, must be prepared to feed whenever there is no nectar coming from the field in order to keep his plant in continuous operation.

In this connection we show a corner of the queen breeding yard of the Penn Company of Penn, Mississippi. Mr. J. D. Smith, manager of the company, uses ordinary Mason fruit jars for feeders. By boring a round hole in the top of the cover there is no danger of robbing, since the feed is given above the cluster. At the same time he can see at a glance when passing through the yard whether any feeder is empty. An empty can can be removed and a full one given in its place without disturbing the bees. A few small holes in the jar cover enable the bees to take the feed without its running too fast. On the corner of the hive in the foreground will be noticed the record board on which the queen breeder keeps his notes.



FEEDER FOR CELL-BUILDING COLONIES USED BY THE PENN COMPANY.

## Is Co-Operative Marketing Practical for Beekeepers?

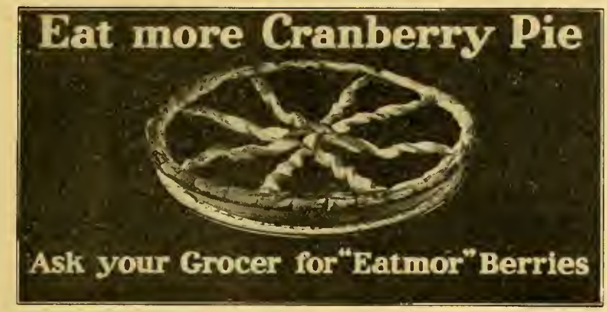
By Chilton Gano.

THE writer discussed in these columns over a year ago, the subject of national advertising for honey through a co-operative plan. It was argued that though beekeepers, unlike the California orange growers, are scattered over an entire nation, this really constitutes no obstacle to co-operation. Several readers of The American Bee Journal were, however, inclined to take issue on that point, and they had quite a weight of authority back of them. For example, the general manager of the great California Fruit Growers' Exchange has himself stated in his book on co-operative marketing that one of the most desirable conditions, where co-operative marketing is planned, is that the crop in question be produced in a restricted area. Mr. Powell, however, says in his book, that this is only true because of the inborn independence of farmers and their natural instinct against trusting strangers.

A most interesting case directly in point has come to light in the past year, however, and has proved that farmers, if they have been distrustful in the past, are getting over it, and that in our Twentieth Century America a farmer in Maine can co-operate with a farmer in Arizona and not feel any grievance over the fact that one is a Yankee and the other a wild and woolly westerner The cranberry industry of this country furnishes the very interesting case in question.

Cranberries do not, like apples, grow in every State in the Union. They grow in bogs unfit for the production of almost any other crop, and the industry has flourished in only three States which have boggy sections especially adapted for their production—Massachusetts, New Jersey and Wisconsin. While the former States are almost within a stone's throw of each other, Wisconsin is a thousand miles from the others. Yet the cranberry growers of these three States have one of the finest and best co-operative marketing organizations in existence today, and are marketing through it about 60 per cent of the country's total cranberry crop. This exchange has just completed its first year's advertising campaign, which was an experiment, of course, but highly successful. It is now practically agreed that advertising is to be a regular policy of the American Cranberry Exchange.

The organization movement in this industry first bore definite fruit in Wisconsin in 1906, when, under the leadership of Judge Gaynor, of Wood County, the Wisconsin Cranberry Sales Company was formed. Judge Gaynor's influence was also a primary factor in the organization of cranberry growers in the other two important cranberry States, where were formed the New England Cranberry


Eat more Cranberry Pie
Ask your Grocer for "Eatmor" Berries

AN EFFECTIVE ADVERTISEMENT FOR CRANBERRIES

Sales Company and the Growers' Cranberry Company of New Jersey.

A federation of the three State organizations was immediately engineered, under the name of the National Fruit Exchange. This Exchange was re-organized in 1911 as the American Cranberry Exchange, whose purposes are stated as "'the securing of higher standards of grade and pack and direct shipments from the grower to the jobber also for the purpose of advertising, selling and distributing at actual expense, Cape Cod, New Jersey and Wisconsin cranberries."

A word about the State organization with which the writer happens to be most familiar may be of interest here. The Massachusetts organization was formed in 1907 for the purpose of increasing "the sale and use of cranberries, to reach a wider market for the same, to improve the packing of cranberries, which * * shall be maintained to the standard * * * so that purchasers may rely on the quality of the same." The original capital stock was $5,000 in ten-dollar shares; voting is by the one-man, one-vote rule, and no honest grower is excluded from membership. Each member agrees to sell his entire crop to the association and not to withdraw during the harvesting and selling season.

### Try Advertising

Up until this past year the Exchange had made rapid progress in all of its aims except that of advertising, and had secured a membership all told of about 1,000 growers in the three States. Last fall, with everything ship-shape and an experience with badly glutted markets during several years past, it was determined to put consumer advertising to the test as a remedy for cranberry overproduction.

An assessment of 7 cents per barrel secured $25,000 with which to put on a trial campaign in a single city. General Manager C. M. Chaney, of the Exchange's central office in New York, is authority for the statement that it was no easy matter to secure the growers' consent to this campaign. They argued that cranberries are only cranberries and that their competitors would benefit as much as they did. The campaign was finally undertaken with the definite understanding that in the city where it was tried consumption must be quite measurably increased by the advertising or there would be no second attempt.

Chicago was selected, because it has long been a primary market for cranberries from all three producing territories and because one of the Exchange's two sales offices is in Chicago. The campaign followed much the same ideas which have been used in advertising fruits. Posters and painted signs, street car cards and newspaper space were used, supplemented with recipe folders in colors, window display material for grocers, and cards for restaurants. The two primary appeals were to appetite, with inviting illustrations in natural colors, and to household pride and economy through the advertising of new and appetizing ways in which cranberries can be used, as for garnishing steaks and chops, as well as turkey and chicken, for cranberry ice, blanc-mange, tapioca, jelly roll, etc.

The campaign was a pronounced success. The volume of business done by Chicago retail stores increased 76 per cent, and sales of carload lots by the Exchange in Chicago, in the first few months, had increased 5 to 7 per cent. In addition to this immediate result it is figured that due to the educational work done and the booklets distributed, Chicago will continue for years, even in the absence of additional advertising, to consume more cranberries per capita than in the past.

However, the campaign is to be continued steadily. A short crop this season prevented immediate expansion, but an appropriation of $50,000 has been voted to be used as soon as the supply warrants.

The brand-name used, "Eatmor Cranberries," is affixed at present only to the barrels. But the Exchange has under consideration a plan for packing in pound packages which will bear the trade-name and more closely identify it with the product.

As one campaign after another is tried and succeeds, the mystery in exploiting successfully various food products is gradually disappearing. A good brand-name, appetizing illustrations, new recipes that tempt the ambitious housewife, and a sufficient volume of publicity to impress both consumers and retailers—in practically every case proves a simple success formula.

Now that producers in so widely separated territories have successfully combined and successfully applied the formula, it would seem as if the last doubt has been swept away that it could be beneficially applied in the honey industry.

Chicago, Ill.

## Bees in the Far North

By F. Dundas Todd.

On page 335 of the October issue you say "On the Western Continent there are probably no bees kept as far north as the latitude of Kazan, which is a trifle north of the 55th degree."

British Columbia comes pretty close, as this summer I shipped a nucleus to the Rev. Father Allard, at Ft. St. James, on Stuart Lake, which is just a trifle south of the same degree of latitude. Stuart Lake is on longitude 120 degrees W. Ft. St. James is on the S. E. corner and is located about 100 miles N. W. of Ft. George, which is probably on your map. Ft. George is on the Fraser River just where it takes its big turn from the east. Quite a number of rivers join it near that point; one, the Nechacko, being helped by a river from Stuart Lake.

Father Allard writes: "George, my beeman, entertains no doubt whatever of succeeding with bees. When he left he told me had we had those bees in the early season we could have gotten a hundred pounds of honey." (A three-frame nucleus arrived at Ft. St. James on June 25.) "And I wish you were here to taste it. It's grand!"

This region along the Grand Trunk Pacific is, from a beeman's standpoint, a most interesting one. On the map you will find Aldermere. Close by, say ten miles away, is Smithers, a division point. I shipped bees there, which also did well. This town, you will notice, is still further north than Ft. St. James.

From Hazelton to Ft. George is about 300 miles. North and south of the railroad, for at least ten miles each way, there is a solid mass of fireweed in the fall, while in fall and and early summer there are all kinds of wild fruits in bloom. On the face of it, we have a beeman's paradise of about 6,000 to 10,000 square miles area, which is just being tapped. I dream that this Bulkeley Valley will some day become the biggest and most productive honey section of the North American continent. The flavor of our B. C. honey is exquisite.

I wish you could visit this western coast some summer, for I know you would enjoy it. The scenery is wonderful and from a bee standpoint most fascinating.

We in British Columbia, I think, can claim the most northerly record on this continent and we assuredly have got the most westerly, which is situated at Sandspit, on the Queen Charlotte Isles, the longitude being about 132 degrees west.

Victoria, B. C.

## The Apiaries of the Caucasus

By C. A. Gorbatcheff.

BEEKEEPING has been a leading industry in the Caucasus since prehistoric times and, according to tradition handed down, this has been its cradle.

The indigenous apiaries and hives present a great variety of types and an originality of construction, as they all bear the stamp of their locality and of its population.

Since the dissemination of movable-frame hives, these characteristic apiaries diminish in number annually and the time is not far distant when they will entirely disappear.

The Society of Apiculture of the Caucasus, since the first days of its organization, has considered it a duty to gather together the most characteristic pictures of these indigenous apiaries. It has therefore taken advantage of the excellent photographic collection of Mr. K. M. Saniss, member of the association, as well as of the collection of the "Sericicole Station." These views were gathered together to the number of forty-eight.

Apiary Constructions. The majority of the indigenous apiaries are installed near homes; sometimes in special quarters; oftentimes they are placed against the house walls.

In the district of Akaltzikhe, Tiflis, and in some villages of the State of Daghestan, they establish apiaries on the flat roofs of houses.

An interesting feature of some of indigenous apiaries is the placing of skulls of domestic animals on stakes, roofs or fences, about the apiary. They are popularly believed to preserve the apiary against the "evil eye."

In the north of Caucasus, where nomadic beekeeping is very common, the "sapetki" (hives made of reeds, withes or wicker basket-ware) are placed in regular rows and covered with hay. In Kakheti, in the Province of Sakatali, Kutais State, they are placed in enclosures and sometimes sheltered under projecting sheds. Usually they are set pell-mell and rarely in regular rows. In the Transcaucasus, in the oriental part, they are installed in enclosed sheds made of boards or reeds, with small holes in the walls through which the bees take flight.

In the districts of Djebrail and Choucha, the apiaries are installed under earthen roofs; the hives are either piled up or placed upon shelves made of poles or boards.

In the State of Elizabethpol, at the foot of the mountains, the hives are ranged in rows against the walls of houses and in cold weather they are covered with felt or rugs.

In the district of Akhaltzikhe, they keep the apiaries on the roofs of the houses, or to protect them against thieves they are surrounded with poles and stakes weighted down with rock piles.

The principal types of Caucasian hives may be divided in two types, towit: 1. Wooden hives made of logs hollowed out and standing vertically (stoiaki) or lying down ((lejaki); 2. Hives made of basket or wicker ware, both stoiaki and lejaki.

1. Hives of hollowed logs are found as follows:

(a) The Kutais hive: The trunk of a tree split in two, the two halves being hollowed out and put back together. At the sides or ends, several bee openings (letki) are made, and the cracks of the joints are closed up with a mixture of soft clay and manure. The hives of this style are often placed on forked stakes which have been driven into the ground.

(b) The Akhaltzikhe hive is similar to that of Kutais, but they are usually piled up.

(c) The Nouka hive is like a trough, formed of two wooden halves narrowed down at their extremity. It is laid on the ground or supported on low stone bases and covered up with bark.

(d) The Lencoran hive is made of a whole piece of log bored through and through. The extremities are closed with round wooden disks, one of which is fitted with entrance holes. A layer of grass serves to protect them against the sun.

(e) The Elizabethpol hive resembles that of Lencoran, but it is much larger and longer and wrought with greater care. It is also found in some villages of Erivan State.

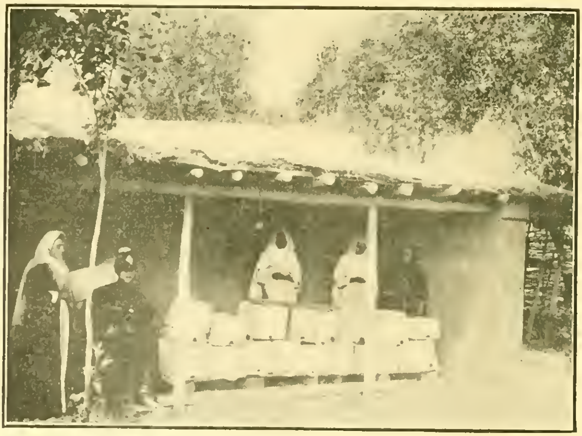
2. The mountain hives are made of wicker, measuring about 1 arshin by 6 or 8 verschok (about 30 inches in length by 10 to 14 inches in diamerer). The top of them ends in the shape of a cupola (like the straw skeps of England and France). The joints of the wicker are always closed with clay and dung mixed. They are set on boards and covered with straw or woolen quilts.

The Tartar hive is cylindrical, with a flat top. It is set up on boards and sheltered with boards.

The "Lejaki" hives are narrow cylinders of wicker or walnut, closed at each end with a wooden disk. The cracks are closed as in the others with a mixture of clay and manure. They are usually set in tiers and sheltered under sheds. They are common in the State of Erivan.

The hives made of bark are to be found in the districts of Gory and Tioneti. They are also long cylinders closed at both ends with wooden disks, with small holes for the bee-entrances.

Tiflis, Caucasus, Russia.



APIARY IN DAGHESTAN TERRITORY, TIFLIS, CAUCASUS. The hives are made of clay.

## The Texas Fair Exhibit

By T. P. Robinson.

THE Texas Beekeepers' Association has just closed one of the most successful apiarian exhibits at the Dallas State Fair in the history of the association. The honey on display was of the finest to be had in the State and came from all parts of the State. There were entries made from Arkansas, as well.

The wax art displayed bananas, peaches, apricots, figs, apples, pears, oranges, crackers, light bread, fried eggs, a baked chicken, a beef heart, and nearly a dozen choice cuts of meat, both pork and beef. The eggs were so perfect that they would have been accepted at any cafe as part of the menu. The beef heart would never have been taken for beeswax at all. The artist was not contented to make a peach and color it perfectly, but put the fuzz on the peach.

The exhibit, as an educational factor, is of the greatest merit to the beekeepers of the State. Thousands of people come and visit the apiarian department at the fair and are fast becoming educated to the merits of honey as a food, its granulating propensities, the reason for its varied colors and tastes. Many would at first suggest that the honey in the grocery stores was adulterated. These parties were allowed to have their opinion, but were quickly told of the different flavors of honey, its various colors, and its granulation. I have long ago learned not to argue with people who are certain about a thing, for this makes them more positive in their belief. Merely tell them that you could not think of anyone adulterating honey, especially with the stringent food laws. I always treat them as if I did not care a whit about their contention. These contentions are growing less year by year, as the people become more enlightened on honey. This continuous education is having a great effect towards the larger use of honey. We had honey of the various colors and flavors, also granulated honey, and any argument could be clinched by a real demonstration if necessary. Not only are the people awakening to the importance of the exhibit at the State Fair, but the beekeepers are awakening also to its great importance as an educational factor.

I must mention in this connection the honey cooking that was on exhibition. We had three show cases full of cakes, cookies, fruits and preserves that our good ladies had prepared with honey to show in an educational way the great value of honey in the culinary science.

Mr. W. H. Laws, of Beeville, Texas, was elected by the association to judge the bee exhibit, but the culinary department is a little out of Mr. Law's line, and three ladies judged the cakes and cookies. Miss T. Walker, of Dallas, Texas, is one of the greatest cooking experts in the South; cooking is her hobby. She has carried off many premiums. Miss C. Weimer, of Denton, Texas, the second judge, is the director of foods for the College of Industrial Arts. Miss Elois Berry, of College Station, Texas, was the third judge for this department. She is at present engaged in the exhibition of culinary science for the A. & M. College of Texas.

Mrs. C. G. Hickox, of Dallas, won six first prizes, three second prizes and three third prizes. Mrs. T. W. Burleson, of Waxahichie, Texas, won two first prizes, three second prizes and four third prizes. Miss Madie Hickox, of Dallas, Texas, won one first prize. Mrs. E. G. LeStourgeon, of San Antonio, Texas, took two first, two second and three third prizes. Mrs. Geo. W. Shoeffer, of Dallas, won one first and one second prize. Mrs. W. N. Wiggins, of Dallas, won one first and one second on candy.

Bartlett, Texas.

## Apiary Experiences and Weather Conditions

By D. Queen.

AT the end of the season the beekeeper may well review his management and experiences, and learn something which may be profitable in the season following.

The writer is impressed more and more with the necessity of knowing his territory, and no less, the kind of weather to be expected at certain periods. These things can be learned only by careful observation through a number of seasons, and by listening to older residents who are themselves thoughtful observers.

As I am entirely dependent upon a fall flow for surplus, my observations will apply to similar localities. The early-flow man has his troubles in relation to winter stores, and the late-flow man also has his, although they may be less expensive. Late stored nectar is likely to be not well cured or capped. The prejudice against aster honey is most likely due to the weather conditions immediately after it is stored, rather than to the real character of the honey.

The bees are not good weather forecasters. In proof of this, I have never seen combs so generally built out to biscuit form as is the case this fall, and seldom so many not capped, nor even two-thirds full.

Everything was booming. A week or more of favorable weather could have been profitably employed, when, without warning, came cloudy, raw days one after another until the bloom was over. The bees foresaw the work to be done, and made their storage preparations, but they could not foretell the weather.

I must confess to some responsibility for the failure to cap. I also saw the big flow in prospect, and put on supers rather recklessly, at the same time making the serious mistake of putting these late supers next to the brood-chamber. The result was honey stored in small quantity in about every comb. I should have known better. Next time the supers go on top, if at all.

Another effect of this excessive supering was, in the case of colonies none too strong, to crowd the brood-chamber with honey, and nothing done in the supers.

These colonies evidently realized their inability to fill the big space overhead, and did the next best thing, which was not exactly what I was hoping for.

Queenlessness late in the fall is a rather puzzling problem. If the queenless colony is left alone it may pull through until a queen can be obtained and introduced in the spring, if not, count one colony less.

On the other hand, if united to a queen-right colony, count one less right from the drop of the hat. As an experiment, I have a case of each, and don't know which is to be preferred. The newspaper method of uniting worked all right. One colony had a lot of drones, and the other had the queen. I am curious to know how social affairs stand in the living-room.

Equalizing of brood persistently as long as it seemed desirable was a great aid in lifting weak colonies, and probably controlled swarming. This was my first season without at least one swarm.

The "putting up" of brood sometimes fails to work out well. This is the case where there is a dearth of nectar until late in the season. After the brood is hatched out above there is that large empty space all summer staring the colony in the face, and it proves a real discouragement to any but a rousing big colony. Half-depth supers given as part of the brood-chamber until three weeks before the expected honey flow have kept down swarming, and are not discouraging to a weak colony.

New Jersey.

## Report on Apiary Inspection and Demonstration in Ontario for 1917

By Morley Pettit, Provincial Apiarist.

A CONFERENCE of the Ontario Apiary Inspectors was held at the office of the Apiculture Department, Ontario Agricultural College, on May 16. As few changes had

WICKER HIVES IN LENKORAN STATE, RUSSIA
A whole piece of log is bored through and the ends closed with discs. The hives are on boards and sheltered with bark.

been made in the list of inspectors, the discussions were of an advanced nature which made them very helpful in systematizing the work and bringing about uniformity of methods. Perhaps the most important action taken was the framing of a resolution asking for a change in the foulbrood act calculated to control the sale and shipping of diseased bees from one locality to another. The proposed change would substitute for clauses 5 and 6 of the act the following clauses:

5. Any owner or possessor of diseased colonies of bees or of any infected appliances on beekeeping who sells or barters or gives away or removes from the premises such diseased colonies or infected appliances, or who exposes in his bee-yard or elsewhere any infected comb, honey or other infected thing, shall incur a penalty of not less than $50 nor more than $100, or he may be imprisoned for any term not exceeding two months.

6. Any person who sells or offers for sale or barters or gives away any bees on combs or used appliances for beekeeping, before being authorized by the inspector so to do, shall incur a penalty of not less than $50 nor more than $100, or he may be imprisoned for a term not exceeding two months.

It will be seen that the purpose of this desired change is to prevent the moving or disposal of bees which may be diseased and still have not been inspected. It has been found that there is a great deal of traffic in colonies of bees and used appliances and that disease is spread by this means. At present the law only allows the inspector to prevent this when the apiaries have previously been inspected and found diseased. Many apiaries are advertised for sale at a season when they cannot be inspected, and under the act as it now stands the sale cannot be prevented unless the bees have previously been found diseased, even when they are known to be in a diseased district and are very likely to be infected.

The following is a list of inspectors and the counties in their charge:

Angle, W. B.—Wentworth, Brant, Victoria, Hastings, Peterboro.
Armstrong, Jas.—Lincoln, Welland, Frontenac, Grenville, Leeds, Lennox.
Christian, J. E.—Muskoka, Simcoe.
Denison, Alf. — Dundas, Prescott, Russell, Gloucester, Carleton, (Osgoode.)
Devins, C. J.—Grey, Dufferin.
Fowler, R. A.—Perth, Waterloo.
Gowan, L. B.—Norfolk, Haldimand.
Hunter, R. M.—Oxford.
Hutchinson, E.—Wellington.
McCauley, J. H.—Halton, Peel.
Robertson, N.—Essex, Kent, Elgin.
Rumford, S.—Lambton, Middlesex.
Schrank, J. S.—Bruce, Huron.
Scott, W.—Northumberland, Prince Edward.
Selwyn, H. H. — Glengary, Stromont, Lanark, Renfrew, Carleton (Ex-Glou. Osg.)
Weir, W. A.—Durham, York, Ontario.

The backward spring and frequent rains in early summer made the inspection work very difficult. It also held back the home work of the inspectors so that in many cases they refused to leave home when the weather became favorable for inspection work. On this account the money available for inspection and demonstration work was not all used and not nearly all of the known cases of disease were attended to. This is one of the worst features of our system of inspection by men who are not devoting their whole time to the government work.

Because all beekeepers in the Province cannot receive attention the policy of this department in apiary inspection has been to give the services to those who appreciate it most. This also, coupled with the fact that at no time have we been in a position to take care of all known diseased areas renders any sort of statistical report of little value. A statement of the percentage of inspected apiaries found diseased under such a system, while it might be expected and has usually been given in a report, is of no value under the circumstances. Unfortunately, comparatively few apiaries infected with either disease have been found to be entirely cured, yet it might safely be said that the expenditure of time and money from year to year has not been without benefit in the same way as the expenditure of life and ammunition which has merely held entrenchments against an enemy without making very great advances. Our leading beekeepers are convinced and have stated publicly that great headway is really being made by the education of beekeepers who are learning to act as their own inspectors and are learning to regard either variety of foulbrood as no less an enemy, but one which can be kept very much under control.

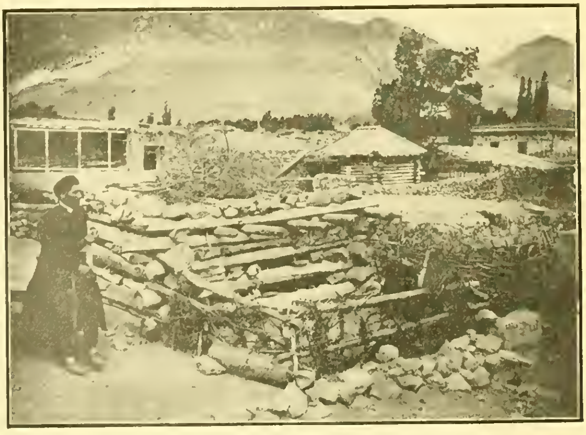
Seven hundred and seventy-eight apiaries were inspected and 203 of these were found to be diseased with either American or European foulbrood. Eight thousand five hundred and fifty-seven colonies were examined and 1,132 were diseased. Two hundred and seventeen colonies were destroyed or treated by the inspector. The owners of the other diseased colonies were instructed as to methods of treating them and most of them reported afterward that they had followed out instructions.

The legislation referring to the disposal of bees was frequently enforced by inspectors and in several instances sales were stopped. As far as possible all intended sales and removal of bees were discovered and examination made before bees were removed.

One unfortunate feature of the season was the shipping of some bees infected with European foulbrood from Niagara district to Kenora district. This district of New Ontario is becoming famous as a clover seed producing area and the district representative has been encouraging the keeping of bees. As soon as the presence of the disease was discovered he communicated with the Provincial Apiarist and our most experienced inspector, Mr. Armstrong, was sent up to look over the case and reports that he has hopes that through the prompt action of the District Representative and of local beekeepers the infection has been practically wiped out.

In addition to the personal visits of inspectors, instructions were carried to beekeepers by means of local apiary demonstrations to a greater extent than ever before. Eighty-eight of these meetings were held in all parts of the Province.

The total attendance at these demonstrations was 2,686, or an average of 32 persons at each. Considering the highly specialized nature of the subject and the fact that comparatively few in a community are interested in bees, also that these demonstrations have been held exten-



ANOTHER APIARY IN TIFLIS
To protect the bees against thieves the hives are placed in a sort of crib weighted down with rocks. The bees fly in and out through the cracks of the crib. Note the skulls of domestic animals to preserve the bees from the "evil eye."

sively throughout the Province for seven years, it must be admitted that they are meeting the desires and requirements of Ontario beekeepers.

These meetings are conducted in almost every case by the inspector for the district. Some of them were interfered with by unfavorable weather, but the people have learned that bee demonstrations will be conducted punctually as advertised, regardless of weather conditions, and that they will not be postponed under any circumstances. The inspectors were instructed this year to make the demonstrations as practical as possible and to reduce public speaking to a minimum. They also agreed that wherever possible the actual manipulations of hives and combs in the apiary under natural conditions would be most acceptable and profitable to those in attendance. Wherever it seemed advisable the demonstrator was supplied with a trunk containing a great number of beekeeping appliances of the most modern design. One of the bee supply firms has also supplied District Representatives with exhibits of this nature, and in some cases these were used.

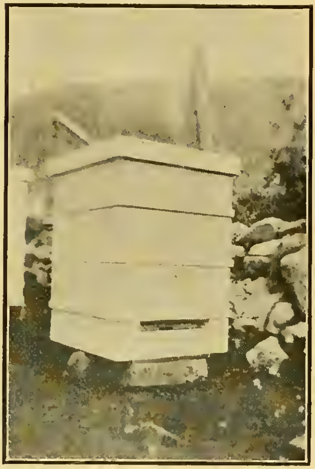
## Evolution of Wintering in British Columbia

By W. J. Sheppard

YEAR 1915—Single-wall hives on trial

YEAR 1916—Double-wall hives on the "Buckeye" principle being tried.

YEAR 1917—Hive-cases that take ordinary single-wall hive-bodies, permanently packed as far as the brood-chamber and covered in, have been found an improvement on the double-wall hives for this section of British Columbia.



"KOOTENAI" HIVE CASE

Permanently packed. There are 3 inches of packing below the floor and on all four sides. The flat cover is 3-8 inch larger all around than the top of the case, and small triangular blocks nailed in each corner inside raise it and ensure permanent ventilation. The stories or "lifts" are all alike, and as supers are put on are added as necessary. In this hive-case the bees are warmer in winter and cooler in summer. When packing for winter all that is necessary is to add the top covering over the frames.

## Notes From Switzerland

By C. W. Aeppler.

IN the September number of "Schweizerische Bienen Zeitung" (Swiss Bee Journal) I find the following of interest:

"Night and day from the nearby boundary one can still hear the thundering of thousands upon thousands of death-dealing cannon. Our importations (sugar) are endangered more than ever; but we live in happy confidence that the interests of Swiss beekeeping will nevertheless be preserved for the future. Should this fatal war be the cause of rationing all foodstuffs, as has already been done in the case of sugar, we will surely set aside a ration for the little bees, even though it must be a modest one.

"Therefore, let us, even though it is with a weary heart, look into the dark future with hope. The war has convinced every Swiss beekeeper that behind him stands a watchman who looks after him. Who is this watchman who endeavors to safeguard our interests? It is the Swiss Beekeepers' Association—the Central Association, which, with its 117 affiliated associations has established itself like a mighty tree which neither storm nor weather can harm, and beneath whose shade over 10,000 beekeepers feel themselves safeguarded."

We can learn a great lesson from the above. The Swiss beekeepers are organized—in comparison we are not. During the past year the Swiss Beekeepers' Association imported 70 carloads of sugar for winter stores for the thousands of colonies of bees in Switzerland, while only 52½ carloads could be delivered by private firms for the same purpose. There are in the neighborhood of 200,000 colonies of bees in Switzerland today. Although we are not surrounded by enemies, as is Switzerland, their success through organization should serve as a lesson to the beekeepers of the United States. The Swiss Government has allowed 8 Kg. (17.6 pounds) of sugar per colony. The Swiss Beekeepers' Association has recommended to all its members to unite all weak colonies and winter only the very best, so that each of these strong colonies can be given more than 17.6 pounds of sugar in the form of sugar syrup, and thus insure the beekeeping industry for 1918.

The average production of honey per colony in Switzerland in 1917 is 5 Kg. (11 pounds) and little or no swarming is reported.

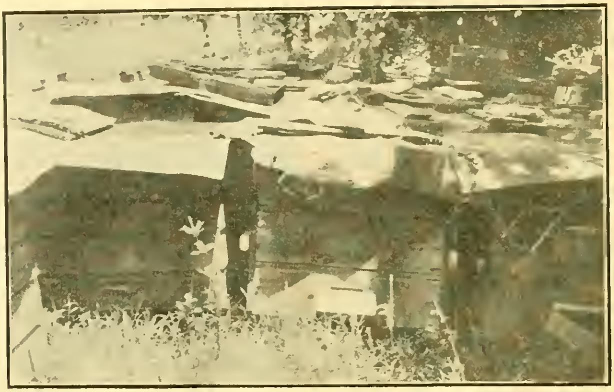
The average price of honey in Switzerland today is 4.50 francs per Kg. (2.2 pounds.) Not knowing whether or not the value of Swiss money has been lowered during the war, I wrote to a large bank for the necessary information. They advise that 100 francs is worth $21.50, or one franc is worth 21½c, so that today honey is selling for 99c per Kg, or 45c per pound. This is an increase of about 25 per cent over 1916, caused by a corresponding increase in the price of sugar and all beekeeping supplies.

More or less speculation in honey seems to have gone on of late, so that today the Swiss Beekeepers' Association is attempting to prevent any further increase in the price of honey. If such a procedure should ever become necessary in the United States, would other foodstuffs be necessarily higher in price? Not so; but such a condition might be brought about if the people at large once learn to know the real food value of honey.

Forreston, Minn.

## Winter Cases for Single Hives

THERE are many modifications of the winter case for wintering outside. . Aside from the extra cost of making a separate case for each hive, none are more practical than the case used by W. R. Hemple, of Bagley, Wis. The picture shows the cases piled up at the corner of the apiary in summer. Mr. Hemple produces comb honey with 125 colonies in one yard. His average was seventy-five pounds of comb honey from basswood in 1917, which is a record for comb honey seldom excelled the past season. In this winter case he provides five inches of bottom packing, five inches on four sides and eight inches on top, all packed with planer shavings. He removes the covers from the hives when packing for winter and places burlap over the frames. An examination in cold weather will often show ice under the cover of the packing case, but all dry over the hive. Mr. Hemple also has a very ingenious swarm catcher which we hope to be able to show at some future time, as our photo was a failure.

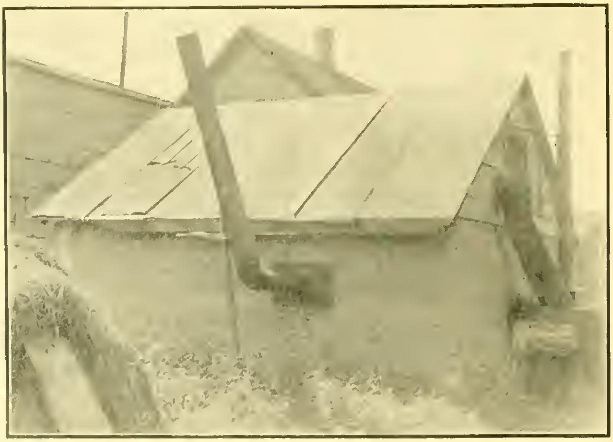


WINTER CASES FOR SINGLE COLONIES USED BY W. R. HEMPLE, BAGLEY, WIS.

## Store-House for Comb Honey

THE question of caring for comb honey in cold weather has puzzled many a beekeeper. Once it granulates in the combs the value of the product is materially reduced and the man who produces in large quantity must market early or be prepared to keep his comb honey warm.

Hubbard Brothers, of Boyne Falls, Mich., are large producers of fine comb honey. For a few months in the fall and winter of 1916 comb honey was a slow sale and many beekeepers sacrificed their crop rather than risk keeping it until cold weather. The Hubbards did not worry, for they are prepared to carry a big crop through any kind of winter. The picture shows their concrete store-house for comb honey. The building is ceiled inside with matched lumber and a very little fire maintains an even temperature and requires little attention. At the end of the building can be seen an ordinary iron stove for burning wood, which is encased in a brick case. From this case a pipe to conduct the warm air enters the building. They can thus care for the fire without opening the building. There is another pipe leading out at the side to provide for a circulation of air. By holding the one crop for a few months until the market was stabilized, they were able to get a fair price for their honey and thus save the price of the building several times over in one year.



HUBBARD BROS.' CONCRETE HOUSE FOR STORING COMB HONEY

## A Texas Beekeeper---T. W. Burleson

By T. P. Robinson

AT the close of the Dallas State Fair, and where my services had ended as superintendent of the apiarian department, my good friend, Mr. T. W. Burleson, gave me a kind invitation to go home with him and I accepted.

Mr. Burleson is one of those very enthusiastic beekeepers. He is full of the malady of beekeeping and as a result is making a great success. I must say, in the first place, that Mr. Burleson was the greatest, or I might say the largest exhibitor, at the fair this year and he won many prizes, both on honey and bees. The money won by him amounted well beyond $100.

He is a believer in the motor truck for apiary work and has a fine truck which he uses with great success. At the close of the fair he used it to take back to his home all the honey and other show things that he had not sold. We started for his home, 35 miles south, at Waxahachie.

This beautiful town is located on the M. K. & T. R. R. and is a most ideal place in which to live. The wind was blowing strongly from the north, with a temperature of about 45 degrees, and was chilly. We made the run in about two and one-half hours, leaving Dallas about 2 o'clock p. m., and arriving at Waxahachie at 5 o'clock. A half hour was lost in a detour from our course to visit one of Mr. Burleson's apiaries. Upon arriving home we found Mrs. Burleson busy with the cares of her house. She is perfectly at home in her husband's apiaries and a splendid homekeeper besides. His home yard is kept in his back yard, right in the heart of town. He told me that the bees did very well in this location.

His honey house is two stories high. In the upper story were stored cans and momentarily unneeded hives, frames and the like. The lower story is used for the extraction room and honey storage. This house is tightly constructed and is used as a heating room to liquify granulated honey. The house is equipped with a hot water system and artificial gas is used as the heating agent. Mr. Burleson's idea was to construct the house so that he could cater to fancy comb honey trade, keeping it heated up to near 100 degrees so as to have this honey in tip top shape for the fancy market. Cotton honey gathered in this district will granulate in ten days with a temperature ranging near 40 degrees. There has been very little use for the house for the last three years, as the demand for honey has outrun the supply, and no honey was held over, but the house was used very successfully in 1914.

We visited several of Mr. Burleson's apiaries and found them in good condition and doing well. The bees are kept with the hives in pairs. For hive-stands two 2x4 scantlings are cut 6 feet long and nailed together with cleats, a separate board about 14 inches square is used for an alighting board just in front of the hive. In taking the honey he makes it a rule to extract a yard a day and return home with the harvest and visit a different yard the next day, and so on until he is through all his apiaries.

He is very enthusiastic about pound packages. He made large shipments of the pound packages last spring and was uniformly successful.

---

**Masachusetts Meeting.**—Wednesday, January 9, at 1 p. m., the beekeepers of Massachusetts will meet in the library of Horticultural Hall at Worcester to discuss matters of general beekeeping interest. At 3 o'clock, in the same day, Mr. E. R. Root, of Medina, Ohio, will talk on "Importance of Honey Production."

There will also be exhibits of honey, wax and apiary appliances, in Horticultural Hall, during the three days, to which the public will be invited. It is intended to emphasize the value and uses of honey in the home.
B. N. GATES.

T. W. BURLESON AND CREW READY TO EXTRACT

# LEGAL SERVICE DEPARTMENT

## Shipping Honey—Claims for Damage

"In November, 1913, I shipped a crate of four cases of comb honey to —— by —— railroad. A week later two cases of comb honey were shipped back to me. It was badly broken and leaking, and I would not accept it. He wrote that it was broken by the railroad company. It was in first-class condition when I got the bill of lading. Can you help me collect the damages?
ILLINOIS.

Answer: We can only give advice through this department and cannot undertake to look after any kind of legal case.

Where an article is delivered to the railroad company in good condition and is lost or damaged en route the company is liable for the amount of damages. There is usually very little trouble about settlements in cases of this kind if properly handled. A shipper should never accept damaged goods without having the fact of the damage noted on his shipping receipt by the agent. Where the agent is friendly and reasonable the easiest way to make a collection for damages is through him. If he is disposed to take the matter up with the claim department of the road and to make a fair statement of the case, the settlement is usually prompt. Railroads dislike having claims of this kind placed in the hands of attorneys, since there are lawyers who make a specialty of damage cases against railroads. It too often happens that the railroad company is compelled to pay claims that are not entirely just. Accordingly when a shipper takes the short cut and presents his case directly he is quite likely to receive both courteous and fair treatment. It is necessary, however, to send along all the papers so that the claim department can see at a glance the history of the shipment.

It sometimes happens that a local agent is inclined to be surly and unreasonable. I have even known cases where the agent himself was at fault, and he then used his influence with the road against the settlement of an honest claim, apparently to shield himself from blame. In a case of this kind it becomes necessary to disregard the agent and take the matter up with the claim department of the road or employ an attorney to do so.

T. W BURLESON

Where the damage occurred as long ago as 1913 there may be some delay in getting a settlement, as everybody will have forgotten about it by this time and it will be harder to prove the facts in the case. All claims for damages to goods in transit should be filed promptly.

Under present tariff regulations the freight rate on comb honey in unprotected cases is double the first-class rate, while cases properly crated in carriers go at a much lower rate. This applies to all points west of the Mississippi River. The large number of claims for damaged comb honey brought about the higher rate on unprotected shipments.

# BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

## Thirty-five Years of Service

Volume 58 of the American Bee Journal begins with this number. Fifty-seven years have brought a succession of editors, beginning with the great Samuel Wagner, its founder, through his son, Geo. S. Wagner, W. F. Clarke, Thos. G. Newman and Geo. W. York, to the present management.

In continuity of service and extreme devotion to the self-assigned task none can equal the record of Miss Mattie C. Godfrey, whose photograph we reproduce.

Miss Godfrey has been compositor for the American Bee Journal continuously for 35 years. During this time practically all the material used in the Journal has been set up by her. We have the word of former editors, and we can vouch for it ourselves, that the major credit for absence of typographical errors in the columns of the American Bee Journal during this period can be directly traced to her. Her proofs have always been extremely clean and her judgment in revising doubtful copy very accurate.

MISS MATTIE GODFREY

Although it was with a feeling of regret that we accepted her resignation, which takes effect immediately, she has certainly earned her retirement. Such devotion to duty should have a greater reward than is in the power of the American Bee Journal to bestow. We know that we can combine the appreciation of all our older readers, at least, with our own in extending hearty good wishes for many years to come to the one who has been so faithful to the American Bee Journal.

## My Bees

Read at the Iowa Convention by Mrs. Clara T. Noel.

I am one of the little beekeepers. My apiary has never numbered 40 colonies, yet my enthusiasm is not to be measured by my size or the number of colonies I operate.

My interest in bees began in the early seventies, when my honored father, a retired farmer, became interested in bees and made them his special study. He had the idea of movable frames and for his own amusement made hives of various shapes, but always with movable frames. I was his assistant and companion in operating an apiary located in the woods along the Des Moines river, where basswood was plentiful. This apiary consisted of a large number of log gums and boxes filled with bees that the owner had long neglected. My father and I transferred these into movable frame hives for a consideration. The long days that I operated the smoker and the many queens I helped to find that they might be clipped, my father transferring, uniting, robbing as he thought best, gave me my first experience in beekeeping.

It is only in the last dozen years that my love for bees has had an opportunity to indulge itself and to put in practice the lessons I learned in early girlhood. A colony of bees came into my possession in a modern, up-to-date hive, in June, when white clover was in bloom, and the pastures and roadsides were as white as if carpeted with snow—that swarm, the beginning of my apiary, gathered over 100 pounds of beautiful white clover honey that season Since then I have had much pleasure, some profit and many stings in my beekeeping experience.

My apiary grew very slowly, but it was always self-supporting, supplying the home table with choice honey. I used up-to-date hives, building a substantial bee-house for storage and work. The last few years there has been an income that I call "my traveling fund." Through its existence a few years ago I was enabled to make a visit to some of my children living in the far West. In giving parting instructions to the girls who were to care for the home during my absence, one asked, "What about your bees? What must be done to them?" Knowing they were never known to molest them in any way, I felt safe in saying: "You may have for your own all the honey you take off and sell." Many supers were on and the white clover harvest was in full swing. After a delightful trip through California's fine valleys, over snow-capped mountains, a day and night ride on the ocean, home by way of Glacier Park and Montana's wonderful wheat fields, I found my bees had been tampered with and appeared in a decidedly disordered condition. After a little questioning I found those girls had robbed my bees of over 100 pounds of choice white clover comb honey, although they had said they would rather face the German guns than my bees. While I wear neither veil nor gloves, those girls went mother one better and went forth to conquer with low-necked and short-sleeved dresses. They daintily used the smoker and hurriedly took off the supers and rushed them to a place of safety, bees and all. The astonished bees did not at once protest, but soon other sounds than laughter came from those girls. Brothers came hurriedly to the rescue, but beat a hasty retreat, even the sedate father disappeared around the buildings in undignified haste. The hired man and the dog came in for a share of fiery darts. Not until dark did those bees desert their stores. The next day, with swollen hands and disfigured faces, those girls prepared their plunder for market. But they said "Never again will we play a joke on mother through the agency of her bees." The hired man would eat no honey while he staid with us, and the dog to this day disappears when the smoker starts.

I have been stung many times, but not always by the bees. Once I bought a red clover queen and had visions of gathering all the honey for miles around, but instead, her workers cared little to fill honey sections with any kind of honey; they swarmed early and late and poorly prepared for the winter.

Oh the talking it took to convince the irate woman who said the bees were ruining her grapes; they were all my bees, because they all had "Clara T." on their wings. You beekeepers know how hard it is to convince some people that the bees were saving what had been laid waste by other insects and birds.

I never could control swarming, but one year an article in one of the bee journals said "Swarms always settle a certain number of feet from the hive before taking their long flight." I believe it was fifty feet. I was delighted. No more swarms should get away from me. But the writer did not say in what direction those fifty feet would be. My prime swarm settled fifty feet from the hive all right, but straight up to the swaying branch of a tall ash tree, where I found it impossible to get them. Just why so many swarms chose that particular place I do not know, but practically every swarm went to the same swaying branch, just fifty feet away.

When white clover blooms, I do not enjoy the Ladies' Aid nor the Missionary Society as a good member should. When a paper is being read describing the good work in India or South Africa, I have caught myself wondering if by any chance I had overlooked a queen-cell in No. 10, or hoping No. 6 could wait till tomorrow for another super, or if the clipped golden queen would be lost should No. 13 swarm while I was away.

The best the Good Father had to give the children of the earth was a land flowing with milk and honey. Nectar is found in practically every flower and there is no other way to obtain this sweet for man's use but through the agency of the bees. Think for a minute of the many trips afield for the raw product and the mysterious work in the hive that must be done before it is ready for man's use, then have some consumer wonder why the beeman wants more than 10 cents per pound.

In these troubled times when we are all urged to do our bit in the great struggle for universal peace, we housewives, in answering the call, have canned nearly every known food product, from dandelion greens to beef, pork and chicken. The bees knew the art of canning their stores long before the Mason jar and the cold-pack method were known, and every can keeps, the secret of their canning no one has found out, but if the seal is not broken it seems to keep indefinitely. When supplies are scarce the bees go on scant rations and no one murmurs; their stores are so carefully guarded, supplies issued in such just manner that the colony often lives through a severe famine. But when the harvest is ripe and white clover in bloom, how the bees do work. They let no opportunity pass to bring in supplies, even from the humblest source. There are no strikes for shorter hours. The beekeeper is happy as he watches the heavily laden workers returning to the hive, knowing that the surplus stores will enrich himself. There is not a slacker in the hive, no one asks for exemption from the duty at hand. The future need of the colony is at stake, the life of their home depends upon each doing her bit. and all cheerfully rally to the call.

Oskaloosa, Iowa.

### Bees Wintering on Honey Stored Below Brood-Nest

I ran my bees this summer for extracted honey, using the 5¾ inch super containing the regular shallow extracting frames, but when I was ready to set on my chaff trays for winter I found in eleven of my colonies that the cluster of bees was partly in the shallow extracting super while the bees of the lower part of the cluster hung in the main hive. I found that if I would remove the super they would not have enough honey below to winter on, so I took the supers, bees and all, and set them below the hives, wrapped them with slaters' felt, a sort of tar paper, put my chaff trays with packing on top of the main hives and then the telescope covers.

I have my bees in 8 and 10-frame standard double walled hives, and if I left the supers on top I could not use a chaff tray, for there would be nothing to protect the rim of the hive from rain, and water would leak through at the corners and wet the packing in the spaces at sides and ends.

Now the question is, will my bees starve after they have eaten all the honey out of the main hive, and not go below?

I was afraid they would not go below, because it is more natural for them to travel up after stores, and the heat of the cluster would be at the top of the warm hive. They might not be able to keep up the right temperature if they went below on account of too much space above.

I have the eleven packed this way.

MISS BIRDIE M, HARTLE,
Reynoldsville, Pa.

The likelihood is that the bees will take care of their stores all right without any interference on your part. Since your last handling there have probably been days warm enough so that the bees would carry up from below the honey; since, as you say, it is natural for them to travel up after stores, it is also natural for them to carry up any stores that may be below. There is, however, a chance that some one of the colonies has been a bit sluggish, and has not been as active as it should about carrying up. At any rate, it will do no harm, the first day it is warm enough for any of the colonies to fly fairly well, to see that **all** are doing so. If you find any colony that is quiet while others are flying, pound on the hive until the bees are thoroughly stirred up and flying. When they become thus active you may count that they will be sure to give their attention to carrying up any honey that may be beneath the cluster.

## Beedom Boiled Down

### Will Change to Extracted Honey

I am contemplating changing from comb honey to extracted honey. The prospects are bright for 1918.

FRANK COVERDALE,
Delmar, Iowa.

### Price is Good

This has been a good year, and the honey is retailing for 25 cents per pound. The old crop is gone.

J. E. RIDLEY, Douglas, Wyo.

### Crop a Failure

The bees will not make enough honey to do them around here. There has not been a pound of honey taken off, as far as I have been able to learn. About 50 per cent of the bees were lost last winter on account of continuous cold weather. Many starved in the cluster with plenty of honey in the combs. White clover was mostly killed last winter.

J. H. WARREN,
Elliott, Iowa.

### Gets a Fall Flow

We got a little honey from white clover in the spring, but our fall flow from Spanish needle was fairly good. I had eighteen colonies and increased to twenty-one, all in good winter condition. I had 825 pounds of honey all sold at 18 and 20 cents.

PAUL PIERSALL,
Robinson, Ill.

### Another Change to Extracting

I have 400 colonies of bees and have turned them over to extracted honey.

LESTER K. KEISTER,
Wisconsin.

### Good Crop and Good Price

As far as I can learn from beekeepers in this part of Oklahoma, they have all done extra well this year. My bees have filled two supers. We never lose any from wintering. They are out nearly every month in the year. I have sold my honey at 20 cents in 50-pound lots and 25 cents per pound in small lots of five and ten pounds.

AL. PORTER,
Page, Okla.

### A Colony of Hustlers

The queen of this colony, a leather-colored Italian, distinguished herself during the season of 1917. Her Keeper heeded the editor's advice, page 124, and she did the rest. At swarming time she attended strictly to business instead of following the foolish fashion of her neighbors. Super after super was added and nicely filled until the pile was nearly five feet high. Where the nectar was found, when other colonies found

A COLONY OF HUSTLERS

barely enough to keep from starvation remains a puzzle. Two hundred and ten pounds of honey has been extracted from the five upper supers and sold for 12½ cents per pound. Mary, who keeps a store at the fifth cross roads, paid $27.25 cash.

L. L. APIARY, Wisconsin.

### Good Times in Wisconsin

The past season in Northern Wisconsin has been below the average. An apiary that averaged 193 pounds per colony in 1916 fell to 104 pounds per colony this year.

In July we had a very interesting meeting with about 25 beekeepers present. Professors Ball and Wilson, of the University of Wisconsin, were with us for two days. The first day was spent in inspecting apiaries; 391 colonies were examined. Professor Ball pronounced them the freest from disease and best kept of any in the State. On the second day a field meet was held at the apiary of James Cheif, who has an up-to-date apiary of 68 colonies. Interesting and instructive talks and demonstrations were given.

There are about fifty beekeepers in Langlade County, with from 1 to 200 colonies of bees, producing about 100 pounds of extracted honey per colony and 35 pounds of comb honey per colony. A year ago we organized a beekeepers' association with a present membership of 30. We are establishing one brand of honey for all members, known as "Arctic Honey." We are offered 18 cents per pound for extracted honey in carlots now.

We had 3,500 pounds of honey on display in our booth at the county fair, also swarm of bees in glass hive, beekeeping equipment, and pies, cakes, etc., made with honey.

E. H. MARSH.

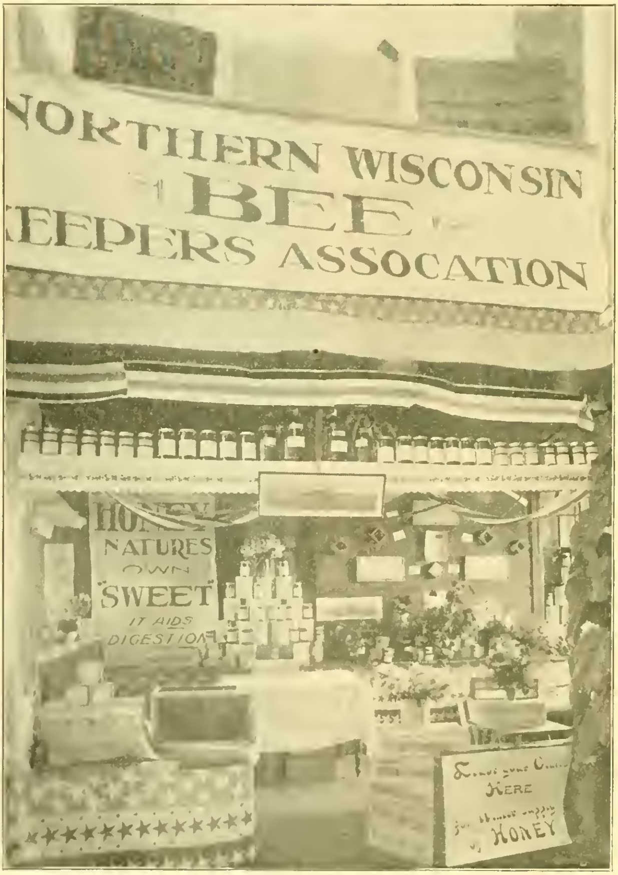
### He Does Not Agree

In the September Journal Mr. Pellett explains the ancient custom of making a noise when the bees swarm. Not all see it in this way. When a swarm is out and on the wing we cannot fail to see that the bees are directed by the sound of the wings of the queen and the leaders stay near the queen.

They have a sound in issuing, another on the wing, another when a place has been selected to settle. The sounds lead them. A small entrance is often the cause of swarms alighting, since it takes longer for a swarm to issue from a small entrance.

Bees issue from the hive in an organized way, following the sound of the queen and leaders. Ring a bell or make any noise loud enough to drown the sound of the queen and you disorganize the body, so they settle.

VIRGINIAN.



BEEKEEPERS' DISPLAY AT ANTIGO, WIS.

### California Cold and Dry

Rains are still holding off, but I have hopes for a wet winter for the reason of summer and fall rains in adjoining States. November has started in cold.

M. MENDLESON,
Ventura, Calif., Nov. 12.

### Approves Big Hives

In connection with your advocacy of large hives it would probably be of interest to you that we have in this county a veteran who is no doubt among the oldest in the country, with an actual experience of over fifty-five years of keeping bees in several States. He now has an apiary in Pennsylvania and one in North Carolina. Mr. A. G. Lyman, with his wealth of experience, now keeping bees in two widely separated States, after a trial of all sizes of hives and kinds of equipment, says: "Use nothing less than the equivalent of twelve Langstroth frames, and it is doubtful whether fourteen is too large.

L. E. BEBB,
Morgantown, N. C.

### Beginner Gets Good Returns From One Hive

This is my first year. One colony gave me 128 filled sections of fancy comb, none less than 14 ounces. They were sold at 25 cents per section.

C. M. KOPT,
W. New Brighton, N. Y.

### Gets a Good Crop

We have had the largest crop of honey we ever harvested, and are selling it at $1.50 per ten-pound pail. This price looks low, no doubt, but it is about all we think the people here will pay. It has been a great season for buckwheat, but the corn failed to mature, the weather was too cold.

GILLETT BROS.,
Fostoria, Iowa.

### Wide Spacing of Frames

Probably you have forgotten me and the pleasant day we had at Mr. Crane's last summer, in Middlebury, but I have not. I have had another pleasant summer with the bees, got nearly 2,000 pounds of honey from 15 colonies, spring count; 1,500 extracted and 500 comb. My best colony gave me nearly 400 pounds of extracted honey. I had only 2 or 3 swarms and they all came back.

How did I do it? By following your wise suggestion of wider spacing of frames, with plenty of ventilation and abundance of super room.

To get the wider spacing of frames—mine are all 10-frame Hoffman spaced 1⅜ inches—I just pulled out one and divided up the room with the others. I wonder if I can succeed again. But I feel very grateful to you and the Journal for the advice you gave me. C. H. CROFUT,
Arlington, Vt.

## MISCELLANEOUS NEWS ITEMS

**New Jersey Meeting.**—The annual meeting of the New Jersey Beekeepers' Association will be held at Trenton, N. J., on Jan. 24 and 25, 1918. Among the speakers will be Dr. Phillips, editor Root, S. D. House and N. L. Stevens. The meeting is held during Agricultural Week and in conjunction with the Allied Agricultural meetings, and a large attendance is expected. E. G. Carr,
Secretary-Tresurer.

**Ontario Bulletin on Wintering Bees.**—"The Wintering of Bees in Ontario" is the subject of Bulletin 256 of the Fruit Branch of the Ontario Department of Agriculture. It is a 24-page booklet written by Morley Pettit, who has just resigned as Provincial Apiarist for Ontario.

The need for such a bulletin is very evident, since Mr. Pettit, in his opening remarks, states that the loss of bees in Ontario from winter and spring dwindling is yet from 10 to 50 per cent each year.

In his estimation the prime factors in successful wintering are: plenty of young bees, with a young and vigorous queen; plenty of good stores; a well-made and well-adapted hive; a good, sunny location, well protected from winter winds, and extra outside protection from extreme cold and piercing winds.

The major part of the bulletin is taken up with a thorough description of different methods of outdoor wintering, of cellar wintering, of setting out cellared bees in spring, their protection, and spring feeding.

The bulletin is a compact source of information for any beekeeper confronted with similar wintering conditions.

**The Indiana Meeting.**—The meeting of the Indiana State Beekeepers' Association, held in Indianapolis, though not overly large, was certainly an enthusiastic one. The sentiment seemed to be against trying to put the price of honey too high, 25 to 30 cents being considered a fair retail price. After going into the matter very carefully, Prof. D. A. Rothrock gave the opinion that the production of honey in Indiana last season was not nearly so large as reported in the Government Crop Bulletin.

State Inspector Wallace reported a large number of cases of American foulbrood, due mainly to the fact that most of the inspections were made in answer to requests from beekeepers having trouble with disease.

The following are the officers:

Mason J. Niblack, President; F. N. Wallace, Vice President; E. A. Dittrick, Treasurer; R. B. Scott, Secretary.

**Notes From the Michigan Beekeepers' Association Meeting Held at Saginaw, Nov. 27 and 28.**—The number of members attending was small for Michigan, owing to poor train service, nearness to Thanksgiving and the short crop of this year.

Mr. Floyd Markham, of Ypsilanti, won the manufacturers' gold medal for the third time and it thus became his, permanently.

Upon solicitation of Mr. Tyrrell, of Detroit, a committee was appointed which will have charge of making an exhibit of bees and honey at the State Fair. The exhibit will be furnished by members and after the fair it will be sold and the money returned to those who furnish the exhibit. All exhibits of honey will be made in uniform containers which will be furnished by the committee.

The organization of County Beekeepers' Associations was authorized. Any persons interested in securing local organizations should correspond with the Secretary at once.

A committee was appointed to make an effort to secure an extension specialist in beekeeping for Michigan.

Mr. Cremer, an advertising specialist from Theo. McManus, Inc., addressed the convention on the subject of advertising and showed that co-operative advertising is successful. He advised that the annual production be increased to a point where a demand created for honey by advertising could be satisfied. He made it clear that the first step beyond production would be the formulating of a plan for selling after a demand is created by advertising.

Mr. E. R. Root spoke on the future of the honey market. His belief is that the prices will not drop during the war, and that after the war the prices will not become as low as they previously have been.

The paper on the "Proper Spacing of Frames," by C. P. Dadant, was read by the Secretary in the absence of Mr. Dadant.

A banquet was enjoyed on the evening of November 27.

The next annual meeting will be held at Battle Creek.
B. F. KINDIG, Sec'y.

**North Carolina Meeting.** — The State Beekeepers' Association of North Carolina will meet in convention at Newbern, N. C., on Thursday, January 10, in the Chamber of Commerce of that city. The editor of the American Bee Journal has promised a paper for that meeting and will bring it in person if it is possible for him to be there.

Information concerning the meeting may be secured by addressing the President of the association, Professor Franklin Sherman, State Entomologist, Raleigh, N. C.

It is a pleasure to see the Southeastern States coming to the front. President Sherman states that their membership is now 127 beekeepers, owning 7,869 colonies.

**Northern Pennsylvania Beekeepers Organize.**—At the Inter-State Fair at Athens, Pa., on Sept. 19, 1917, there was organized a Northern Pennsylvania Beekeepers' Association with 35 members, representing about 1500 colonies. The following officers were elected:

Chas. N. Green, President, Troy, Pa.; W. H. Allen, Vice President, Wysox, Pa.; Harry Beaver, Secretary-Treasurer, Troy, Pa.

The Northern Pennsylvania Beekeepers organized a few years ago at Williamsport, Pa. Either for lack of interest or more interest and more beekeepers in the southern part of the State, the association moved to Philadelphia, Pa.

**The National Meeting.**—The annual meeting of the National Beekeepers' Association will be held Feb. 19, 20 and 21, 1918, at Burlington, Iowa. Remy Hall, one of the finest in the city, will be the meeting place. Do not forget the dates. A full program will appear in February.
JOHN C. BULL, Sec.-Treas.

**Tupelo Honey Exchange.** — Beekeepers are taking an increased interest in organization, the best evidence of which was the Tupelo Honey Exchange, which came as the result of the meeting held at Wewahitchka, Fla., by Georgia and Florida beekeepers of the Apalachicola river. J. J. Wilder, of Cordele, who was elected President, was the principal mover in the work and was assisted by Kennith Hawkins, of the U. S. Department of Agriculture. It is understood that Mr. Hawkins plans to spend several weeks in the State, working on the organization of the beekeepers for foul brood eradication.

The officers who were named were J. J. Wilder, Cordele, Ga., President; L. L. Lanier, Dalkeith, Fla., Vice President; J. R. Hunter, Wawahitchka, Fla., Secretary; J. O. Hallman, Helena, Ga., Treasurer, and J. K. Isbell, Wewahitchka, Fla., manager. The directors are: J. J. Wilder, G. G. Hensler, C. F. Glenn, H. E. Rich, R.

J. Read, F. T. Branch and W. B. Bradley, of Florida and Georgia.

**The Kansas Meetings.**—A member of the staff of the American Bee Journal enjoyed the opportunity to attend the meetings of the Arkansas Valley Beekeepers' Association, which met at Wichita Nov. 23-24, and the Northwest Kansas at Manhattan on Nov. 26. The beekeepers of Kansas are wide awake and propose to keep their State in the front rank. Three sectional meetings are held which make it possible for many to attend who would not attend the State meeting, as well as stimulating interest in the State convention.

Dr. A. D. Raffingon was elected President of the Arkansas Valley Association, J. A. Nininger Vice President, and Prof. A. W. Jones Secretary-Treasurer. O. J. Jones and E. W. Jewell were elected Directors.

The Northwest Kansas Association elected Prof. G. H. Failyer President, W. E. Axtell Vice President and Harry A. Huff Secretary.

A feature of the Wichita meeting was a honey luncheon served by the class in cookery at the Friend University. Everything served was cooked with honey or seasoned with it in some way. It was a most delightful occasion.

Animated discussions followed the various papers, which indicated a lively interest in the subjects discussed. In some sections of the State the beekeepers have secured a good honey crop, which is selling readily at good prices. Both meetings were well attended.

THE WRIGHT APIARY, where the Eastern New York meeting was held. Large honey house in the middle, house for combs on the left, with a background of basswoods.

**Make Bees Comfortable.**—Failure to insulate the bottom of the hive largely offsets the value of insulation around the hive in the outdoor wintering of bees, according to the Chief of the Bureau of Entomology of the United States Department of Agriculture. Experiments conducted with a number of insulated hives showed that much heat was lost from the unprotected hive bottom.

Beekeepers have repeatedly claimed that excessive insulation is even more detrimental in winter than insufficient insulation, because of the failure of the colony to warm up on bright days. To test this theory, a colony was packed in the fall with 16 inches of sawdust on all sides, top and bottom. Temperature records were made at frequent intervals every day throughout the winter and spring. The colony remained in excellent condition in every respect throughout the winter, being little affected by high winds, and after brood rearing began it built up with great rapidity. Then, to continue observations on the effect of insulation on the building up of the colony, the packing was allowed to remain all summer. Except for the impossibility of manipulating the colony, it remained in excellent condition. It seems clear, therefore, that beekeepers need not fear detrimental results from abundant insulation at any season of the year.

W. D. WRIGHT ADDRESSING THE EASTERN NEW YORK MEETING

**Kansas State Meeting.**—The Kansas State Beekeepers' Association will hold their annual meeting in Topeka, January 8 and 9.

O. A. KEENE, Sec'y.

**Price Committee of Chicago-Northwestern Association.**—At the convention of the Chicago-Northwestern Beekeepers' Association held in Chicago Nov. 30-Dec. 1, the following important resolution was unanimously adopted:

Whereas, The committee appointed at the 1916 meeting of this association for the purpose of investigating conditions for marketing honey and for recommending to producers a schedule of minimum prices for the season 1917, has performed its work to the satisfaction of the association, resulting in more fair and more uniform prices to the producer; therefore, be it

Resolved, That the work of the committee be continued throughout the season of 1918 and extended as far as the funds of the association will permit, and that the President be empowered to appoint the members of such committee.

The following were appointed as Committee on Prices for 1918:

John C. Bull, Secretary-Treasurer Chicago-Northwestern Beekeepers' Association, Valparaiso, Ind; E. D. Townsend, Northstar, Mich.; L. C. Dadant, Hamilton, Ill.; Edward Hassinger, Jr., Greenville, Wis.

In discussion of the resolution it was shown that the purpose of the committee is not to boost prices to an unreasonable or exhorbitant figure, but to keep producers informed in regard to reasonable retail prices for their product and in this way to endeavor to overcome the practice among uninformed beekeepers of retailing honey at or below wholesale or jobbing prices. A canvass of the members of the association present at the convention showed that nearly all were obtaining for their honey prices not less than those recommended by the committee, whereas, a year ago a similar canvass showed selling prices varying from 10c to 25c a pound.

All interested in receiving reports and price recommendations of the committee should write to Mr. Bull.

E. S. MILLER, Pres.

**Meeting of Ontario County Beekeepers.**—The Ontario County Beekeepers' Society of New York will hold its regular meeting in Canandaigua court house on Tuesday, Jan. 15, 1918. F. GREINER, Sec'y.

**Missouri Apicultural Society** (Incorporated)—The fifteenth annual meeting of the Missouri Apicultural Society, being the third as an incorporated body, will be held in Columbia, Mo., during Farmers' Week, Jan. 15 to 18, 1918. The following program has been prepared and important business will be transacted. All members are urged to attend and to bring others interested in beekeeping.

Tuesday, Jan. 15—"Spraying and Bees," T. J. Talbert; "Some Adversities in Beekeeping," E. E. Tyler; "Extension Beekeeping," K. C. Sullivan; "Fruit Growing and Bees," E. H. Favor. Inspection of Department Apiary.

Wednesday, Jan. 16—"Extracted vs. Comb Honey," J. F. Diemer; "History of Missouri Beekeeping," R. A. Holekamp; "Missouri Honey Plants," H. B. Parks; "Commercial Production of Comb Honey," A. B. Crandall. Demonstration in handling bees under screen, extracting honey and preparation of hives and hive fixtures, E. E. Tyler, L. Haseman, A. H. Hollinger and K. C. Sullivan. "Commercial Beekeeping," C. P. Dadant. Business meeting.

Thursday, Jan. 17—"Thirty-three Years in Beekeeping," Wm. J. Preston; "Beekeeping in Japan," George O. Shinji; "Using Honey to Save Sugar," Louise Stanley; "The Chemistry of Honey," Prof. W. G. Brown; "The Anatomy of the Honey Bee," A. H. Hollinger. Demonstration in handling bees under a screen, E. E. Tyler. Question Box, W. C. Campbell. Business meeting and election of officers at 3 p. m.

Friday, Jan. 18—"Wintering Bees," H. M. Fort; "Shipping and Marketing Honey," George Conaway; "Queen Rearing," A. V. Small; "Farm Beekeeping," L. Haseman; "Missouri Beekeepers," A. D. Wolfe. Annual Farmers' Week banquet at 8 o'clock, at which a special table for beekeepers will be reserved.

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

### Semi-Monthly Market News Bulletin

Honey arrivals since last report:

**Keokuk, Iowa**—20 Pounds Missouri.

**Hamilton, Ill.**—2,500 pounds Minnesota.

**Medina, Ohio**—5,995 pounds Michigan, 11,040 pounds New York, 30,900 pounds Oregon, 3,016 pounds Ohio.

### Telegraphic Reports From Today's Markets—Jobbing Prices

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report represent the prices at which the "wholesale carlot receivers" sell to the "jobbers.")

**Note:** Arrivals include receipts during preceding two weeks. Prices represent current quotations.

**Chicago**—Receipts and supplies very light. Demand good, market firm. Stock from nearby States: Comb honey, fancy clover and basswood, 22-24c per pound; off grades as low as 18c; extracted in tins, best 15½-16½ per pound; California, amber mostly 16½c per pound. Beeswax: Supplies practically exhausted, no sales reported.

PART OF THE APIARY OF A. L. BEAUDIN IN QUEBEC. BEGINNING WITH 250 COLONIES IN THE SPRING, MR. BEAUDIN FINISHED WITH 400 COLONIES AND HARVESTED 26,000 POUNDS OF EXTRACTED HONEY.

**Denver**—Approximately 900 cases comb, 15,000 pounds extracted. Demand and movement good; market firm. Comb honey: Colorado, white, quality and condition generally good; 24-section cases No. 1, $4.05, No. 2, $3.65. Extracted honey, white to light amber, 16c per pound. Beeswax: Receipts light. Price to producer, 40c.

**Kansas City**—No fresh arrivals; light demand, movement moderate, market firm, few sales. All sales in small lots. Comb honey: Colorados: white, quality and condition good, No. 1, $4.35; No. 2, $4.20 per 24-section case. Extracted honey, Colorado, quality and condition generally good; white and extra light amber, mostly 15c per pound; dark, no sales reported. Beeswax: Receipts light; light demand, market firm; all sales in small lots; few sales, 30-35c per pound.

**Minneapolis**—Local receipts very light; supplies moderate; demand moderate; market firm; all sales in small lots. Comb honey: Minnesota and Wisconsin, white, 24-section cases, $4.50-5.00; 12-section cases mostly $2.25. Extracted honey: Minnesota, white in 10, 20 and 60-pound pails, mostly 19c per pound. Beeswax, no sales reported.

**St. Paul**—Receipts, one box, and one crate Minnesota comb honey (total weight 140 pounds), and two casks of Wisconsin extracted honey weighing 1,530 pounds. Demand moderate, market firm; few sales reported. All sales in small lots. Comb honey: Minnesota and Wisconsin, white, 24-section cases mostly $4.50. Extracted, no sales reported. Beeswax: no sales.

**New York**—Arrivals, 256 barrels Porto Rican, 6 barrels Florida. Supplies light; market steady. Extracted honey: West Indies, $1.50 1.60 per gallon. Beeswax: 40 bags Porto Rican arrived. Demand good; market steady. Yellow, 37-38c per pound; dark, 36-37c per pound.

**St. Louis**—No fresh carlot arrivals. Supplies light. Practically none being sold. Extracted honey: In cans, light amber, 12c per pound; in barrels, 11½c per pound. Comb honey: No sales reported. Beeswax: Supplies practicaly exhausted; no sales reported.

**Philadelphia**—23 kegs, 2 barrels, mostly from New York, and approximately 300 cases local comb arrived. Practically no sales. Very active demand; market very strong. Comb honey: Few sales; light amber, 22c per pound. Beeswax: No sales; no offerings.

**Cincinnati**—Extracted honey: One car California, 4 barrels from Florida. Comb honey: 1 car Colorado. Demand and movement good; market very strong. Extracted honey: Domestic light amber, 16-17c per pound; orange and white sage, 18c per pound. Comb honey: Fancy white, heavy, $5.00-5.75; No. 1, white, heavy, $4.75

per 24-section case. Beeswax: Demand moderate; market steady; average yellow, 38c to 40c per pound. Extracted honey from Porto Rico: dark amber, 15c per pound.

There was an old man named Miller,
(Dr. C. C. for a filler),
He was filled with bee lore
'Till he couldn't hold more;
He's a regular bee-lore distiller.

**Western New York Honey Producers' Association Meeting.**—The fourth annual meeting of the Western New York Honey Producers' Association was held at the Genesee Hotel, Buffalo, N. Y., Nov. 13 and 14, 1917. After the various reports were read and approved the following subjects were ably handled by their respective supporters.

"Wax Rendering," by O. L. Hershiser, of Kenmore, N. Y. He pointed out as the best way intermittent pressure under boiling water. He also advised using very small amounts of sulphuric acid to help cleanse the wax.

J. L. Byer, of Markham, Canada, spoke on beekeeping as a business and showed that beekeeping was not a get-rich business, but rather one of modest inclinations. A man to be a good beekeeper must be a nature lover, a keen observer, have patience, and, last but not least, must like his work.

Mr. S. D. House, of Camillus, N. Y., spoke on "Producing Fancy Comb Honey." He likes to have a queen of the previous season's autumn rearing, preparedness of both man and bees to the best possible point, and prefers a super of a lesser number of sections than is ordinary, for his hive only containing 21 sections. He produces some extracted honey at the close of the season rather than a lot of unfilled sections.

Mr. Charles Stewart, of Johnstown, N. Y., spoke on "Rearing Good Queens." Beekeepers do not appreciate the value of having a few queens in the yard to draw on at any time to use. He emphasized that good breeders be used, some that are good honey gatherers, gentle, resistant to foulbrood, and always to select the best.

Mr. H. H. Root, of Medina, Ohio, spoke on "Shall We Keep More Bees, Better Bees, or Keep Bees Better?" He laid stress on the point that we should keep as many bees as possible for profit and to produce as much honey as possible, especially in these times of National Conservation. He thought there was a limit to the amount of bees a man can keep profitably.

Mr. J. L. Byer spoke on "Preparing for a Crop of Honey." Young queens, young bees, hive solid with stores to go into winter quarters; these will cause good wintering, which must precede the crop. He does not advise uniting weak colonies in spring, but rather build up medium ones with them if possible, to get as many as possible strong for the honey flow.

"Bee Diseases" were taken up by Mr. Chas. Stewart and Mr. House. Discussions and questions followed each speaker.

The following officers were elected: Mr. J. H. Sprout, Lockport, N. Y., President; Dr. G. J. Hearne, of Buffalo, N. Y., Vice President, and Mr. Howard Myers, of Youngstown, N. Y., Secretary-Treasurer.

WILLIAM VOLLMER.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

It is inferred that all readers have access to the book "A Thousand Answers to Beekeeping Questions." This will avoid duplication in answering, as the book contains answers to practically all questions ordinarily asked on beekeeping. Subjects not specifically treated, or which are not clear to the reader will be further explained in this department at the request of any subscriber.

## Shake Swarming—Natural Swarming

1. Aside from the advantage of being able to attend to the work at a more convenient time, what advantage is there in shake-swarming as compared with natural swarming? In other words, does the artificial method give better results, and if so, will you please tell us *just why?*

2. In natural swarming is it a safe proceeding and *entirely practical* to return to the parent hive both prime and afterswarms in order to prevent increase of colonies?

3. In natural swarming, when returning the bees to the parent hive, should either queen-cells or issuing queen be destroyed, and at what stage of the proceeding?

MICHIGAN.

ANSWERS.—1. Aside from having things under your own control and avoiding the necessity of watching for swarms, I'm not sure there is any advantage in shaking swarms.

2. Yes, if you return the swarm as often as it issues, there will finally be left in the hive only one virgin, and there will be no more swarming. This plan was formerly the orthodox thing to do, but it may involve a good many times returning, provided no cells are killed.

3. At the time of returning the swarm, kill the old queen and all but one queen-cell. A better way, although a little more troublesome, is this: Kill the old queen upon returning the first swarm (if the queen is clipped you will likely find her on the ground, and the swarm will return itself). Then, beginning a week later, put your ear to the hive each evening until you hear the young queen piping, and the next morning kill *all* the cells in the hive.

## Queen Rearing, Etc.

1. In Iowa how late will a swarm leave the hive and fly away?

2. If you take the queen and a small bunch of bees out of the old hive, will the bees build a queen-cell and rear a queen all right?

3. I want to increase my colonies just so they get enough honey for themselves; what would be your plan to increase them?

4. Will any worker-egg put in a prepared queen-cell hatch out a queenbee?

5. Would it be all right to put a queen-excluder on top of the hive and drum out all the bees but the queen and a small bunch, and divide up the ones you drum out? Would the queen stay and work in the old hive?

6. Which would be the best honey location, on rolling land with quite a little white clover and dandelions, a few fruit trees and quite a few willows, or down by the river with lots of willows and basswood and very few fruit trees and white clover?

7. Do colonies rear their own queens when the old one dies?

8. How do you switch the hives around to make the bees build a queen-cell and rear their own queen?

IOWA.

ANSWERS.—1. As a rule a colony is not likely to swarm in Iowa after July, but there may be an occasional swarm in August, and in rare cases a fool swarm will issue even in September or October.

2. Yes, at a time when eggs and brood are present.

3. I don't know. In some places, in some seasons, there is no plan by which you could increase without loss, for there is not enough harvest to supply the colony for winter, let alone supplying any increase. I suppose your idea is to get the largest increase possible. You might divide each colony into a number of nuclei, but that's a risky business, for if the season should be poor they would not get enough to build up for winter. A safer plan would be to make up colonies having as many as four frames of brood at the start, drawing the brood and bees not from ony one colony, but from different colonies, in no case leaving any colony with less than four brood. Then if the flow should stop at any minute, you would have no weaklings on hand.

4. Not always. You are likely to have many failures, and will probably succeed better with young larvæ than with eggs.

5. Yes, the queen would be likely to do the best she could with what she had left. But whether it would be "all right" would depend on what you did with the bees you took away, and I'm just a little afraid of what you might do.

6. As you put it, it would be hard to say, but in general it would be better to go for the most clover.

7. Yes, if she dies at a time when eggs or young brood are present.

8. No switching is needed. Just take away the queen at about swarming time, and the bees will do the rest.

## Natural Comb Brittle—Queen Laying —Nurse Bees

1. Why is natural comb more brittle than manufactured comb-foundation, at the same temperature?

2. What is the relative conductivity of heat of beeswax, water being taken at 1. as a standard?

3. Assuming that a strong colony be made queenless and ripe queen-cell be given; that the queen hatch and mate and prove normal in every way; and that there be emerging brood sufficient to nurse the brood of a vigorous queen; how long from the time of her hatching would it be before the queen would be at her full capacity at egg-laying? In other words, when would she be at her full maturity?

4. Assuming that I give a pound of newly-hatched bees and a strong, vigorous queen to a queenless colony with a large force of field bees, would the pound of nurse-bees be enough to nurse all the brood she could produce, say until the first of it be sealed? If not, can you give a fair estimate of the approximate number or measure nurse-bees required, either in number, pounds or any other way?

WASHINGTON.

ANSWERS.—1. I don't know. You know iron is annealed, making it soft and tough; perhaps wax goes through some process when used for foundation, having the same effect.

2. Beeswax is poor conductor of heat as compared with water; but I don't know that I ever saw exact figures given for it.

3. Under the conditions you name, the queen would begin laying hardly later than ten days after emerging from her cell; possibly in eight days. I don't know how long after she begins laying she reaches her maximum, and wish some one would tell us. My guess would be not more than one day. That would make her at full maturity when nine to eleven days old. But that guess of "one day" may be considerably off:

4. I don't know enough to answer definitely. I'm inclined, however to the opinion that all the brood an average queen could produce up to the time of the sealing of the first of it would be properly fed if a pound of newly hatched bees were added. At that it might be hard to prove that some of the fielders did not turn in and help on the feeding.

## Bees in Frost-Proof Building for Winter

An old patriarch in our town dreamed of an idea concerning a bee-house, so he began. Being somewhat of a carpenter, he did his own work. He built a house 6x13x10 feet; he put 8 inches of sawdust packing all around it to make it frost proof. He left a bee-entrance at the side, entire width up near the eaves. His door also contained 8 inches of sawdust, in other words his door is as thick as his walls. He worked for weeks putting in frames that were stationary. Then he placed five hives of bees up near the roof, removed the covers and thought his task was over, the bees would do the rest, and after the bees had filled it full he would swing back the huge door and cut great chunks of pure white honey. His hopes were futile. The bees refused to leave their brood-chambers to any great extent.

Recently I rented his bee-house and stored 25 swarms for the winter. Now tell me if I made a mistake. I placed a thermometer inside and he writes me it stands at 53 degrees when it is 35 degrees outside. We believe the house to be frost proof. There is a bee-entrance five-eighths of an inch by four feet near the eaves and a small space one-third of an inch under the door. Will that give them sufficient ventilation? The hives all face the door and on warm days he will open it so they can get a flight. Or do they need it? They had a good flight November 22. They can't get out at the five-eighths in. by four ft. entrance and the room is perfectly dark with door closed. This is near Baker, Ore., where it gets 36 degrees below zero at times, but not of long duration, but there will be zero weather now for three months. We generally have a Chinook wind in February; then the bees get a flight.

I averaged 90 pounds of extracted honey to the colony this year. I beat Dr. Miller; sold it for 25 cents a pint.

We have white clover, alsike, alfalfa. sweet clover and Rocky Mountain bee plant. The alfalfa meadows are covered with dandelion all through May and until the middle of June. The bees are generally carrying pollen from the alders by the middle of March with a snowdrift behind the hives four feet high. But they didn't do it this year. It was nearer the first of May before they got any pollen. A friend of mine in Baker averaged 176 pounds extracted honey, or had 6,000 pounds from 34 hives. We beat Idaho Mine would have done as well had I stayed at home and given them room. I am working in a gold mine. I even worked at mine from the time I put the supers on until I extracted. We lost 60 per cent of our bees last winter; gave them no protection.
OREGON.

Answer.—I don't know how your bees will come out. December 2 the temperature was 53 degrees, and if the building is frost-proof, as stated, it should stand at that. As the bees usually gather pollen by the middle of March, the confinement would probably be no later than that, making the time of imprisonment three and one-half months or less. My guess would be that at a steady temperature of 53 degrees they should stand nicely three and one-half months' confinement without need of a flight. I am skeptical, however, about that "frost-proof" business. Even with your thick walls, the temperature will inevitably become lower until it reaches the average of the outside temperature, and I'm afraid that in considerably less than three and one-half months it will be down to a point where it will be hard for the bees to keep up the proper temperature in the cluster.

If the temperature stands at 53 degrees the bees should be so nearly dormant that the ventilation will be abundant. If it gets colder, so that the bees will be quite active, I'm not so sure. If the bees have a flight while in the building, that will help, provided you can get them to fly and return to their own hives, as to which there may be question.

In the past such buildings have been used, sometimes with success, perhaps oftener with failure.

## Keeping Queen Below Super—Swarm Prevention

1. I have fifty colonies of bees and am running my apiary for comb and extracted honey. I have one shallow extracting super for each hive, with Hoffman frames; top-bars are one-fourth of an inch thick. In the spring, when the honey flow is starting, I give each colony one extracting super, then when they have made a fair showing gathering honey I raise the super and give each one a super containing one-pound sections with full sheets of foundation in each section. The important question to me is, will the bees carry pollen into the section, or will the queen get into the comb-honey super and raise brood there? I don't use queen excluders and thought perhaps this comb-honey super would keep the queen from going into the extracting super. Would it be better to leave the extracting super next to the brood-chamber and put the comb-honey super on it? Would the bees be more apt to put pollen in the one-pound sections over thin top-bars than the over thick ones? If you were running my apiary, equipped as I am, state just how you would manage it.

2. When one doesn't want any natural swarm, how would this plan work? When you find a colony preparing to swarm, catch the queen and put her in a cage; then remove all queen-cells containing eggs or anything else; leave the queen caged for ten days, then examine the colony and kill all queen-cells, then release the queen. Would this prevent swarming? Or would it be better to let the queen remain in the cage for a longer period than ten days? If so, how long?

3. How long can a fertile queen be left in her own hive without injury to herself of to the colony. Also, where would you advise leaving the caged queen,just inside the entrance under the frames, or between two frames of brood, or elsewhere?

Answers.—1. I'm not sure just how it would work to have sections over extracting supers and no excluders, having had no experience in that line. The queen is less likely to go up into shallow extracting-combs than into deep ones, so you have an advanntage at that point. She rarely goes up into a section-super, provided the sections are *filled* with worker-foundation. So, if the queen has not already gone up into the extracting-super when a section-super is placed under it, I think the chances might be good that she would not enter the sections. If, however, there should be brood in the extracting combs when they are put up, the queen would likely enter the sections. If the sections were put on top of the extracting combs. I should not expect the queen to go up. In any case pollen is not likely to be carried up if the queen does not go up.

You ask how I would run your apiary. In these days, when the government is urging food conservation and the greatest amount of production, I should run for extracted honey entirely. or if I should want some sections I should run one or more of the strongest colonies for comb honey entirely.

2. Caging the queen for ten days (which is better than a longer or shorter time) would at least delay swarming, and in a large number of cases prevent it entirely.

3. A queen might be caged probably a month without harm to her, but it would hardly be so well for the colony to have her caged more than ten days.

## Feeding Foulbrood Honey

1. I have some honey taken from foulbrood hives. It has been boiled hard for half an hour with equal amount of water. I understand this is perfectly safe to feed back to the bees. I also understand that it is not safe to feed it in the winter, as it is likely to cause dysentery. When and how can I feed this with safety.?

2. Should this be sealed the same as extracted honey for keeping some time, or would it keep in an ordinary jar with paper cover?
ILLINOIS.

Answers.—1. Boiling does not make it unsafe for winter food, unless it is burned. But unless absolutely necessary to prevent starvation, it is best never to feed in winter. After bees get to flying in spring it may be fed the same as any honey.

2. It will keep as well as any honey without sealing, unless so thin as to sour. After you have boiled it if it is thinner than ordinary honey, allow it to continue with moderate heat until it is as thick as good honey should be, taking care that it does not burn. A safe way is to use a double boiler.

FOR. SALE

FOR RENT—My home of 2½ acres, 1½ miles south of Bureau, Ill., on the I V. W. road; 6-room dwelling, work shop and storeroom; barn, corncribs, chicken house and outdoor cement cellar; good well and cistern; plum orchard, grapes, apple, cherry, peach and pear trees; two good garden plots. Fine chicken farm and one of the best bee locations in Illinois, and home of the late R. A. Elliston, who was a large honey producer. For information address Mrs. R. A. Elliston, 357 Grand Ave., Aurora, Ill.

FOR SALE—Wishing to retire from active business, I offer for sale 300 colonies bees in 8 and 10-frame L. hives; 750 full depth extracting supers, with combs; 400 section honey supers; 300 honey boards; 75 escape boards; eight-frame power extractor, with honey pump; four H. P. gasoline engine; saw with dado, planer heads and attachments for making supplies; a complete apiary in No. 1 condition; good location. 1917 crop was 14 tons honey. Will also sell my home place of ten acres, 5-room house and No. 1 improvements. near to a $5,000 schoolhouse. Will sell home separately and give terms.
J. R. Marlow,
R. D. No. 1, Weiser, Idaho.

Bigger Fruit Profits

The fruit grower of today is reaping his greatest profits by keeping in close touch with the progress of the industry and developments.

Green's American Fruit Grower
"The National Fruit Journal of America"

through its many articles on growing, marketing and related subjects, points the way to bigger fruit profits. A sample copy will be sent you on request; better still, take advantage of our rate of

3 Years for $1.00

which brings you 36 copies of Green's American Fruit Grower—filled from cover to cover with money-making suggestions.

GREEN'S AMERICAN FRUIT GROWER
Chicago, Illinois

**QUEENS — BEES — QUEENS**

**Three Banded and Golden Italians; the best *of* either**

They are hustlers; gentle to handle; cap their honey white; are very resistant to European foulbrood. We have added Mr. B. M. Carraway's queen-rearing outfit to ours and have with us one of his assistants, so can fill all orders promptly. Had fine success shipping bees last season in our newly devised cage and method of feeding, a number of shipments going as far as Idaho and Wyoming. Mr. R. B. Mills, Corinth, N. Y., wrote, "Bees arrived in fine shape, not 50 dead bees to the cage, 2-lb. size." Satisfaction and safe delivery guaranteed. Get your order in early. Reference: The Guaranty State Bank, Robstown, Texas, or the City National Bank, Corpus Christi, Texas.

| | 1 | 6 | 12 | 50 | 100 | |
|---|---|---|---|---|---|---|
| Untested Queens | $1.15 | $ 6.35 | $11.50 | $43.70 | $ 85.00 | Add price of Queens wanted to packages. |
| Select Tested | 2.50 | 11.50 | 20.70 | 74.75 | 138.00 | |
| Bees, one-pound package | 1.75 | 9.80 | 18.40 | 74.75 | 138.00 | |
| Bees, two-pound package | 2.90 | 17.25 | 33.95 | 132.25 | 240.00 | |

CIRCULAR FREE.

**NUECES COUNTY APIARIES, Calallen, Texas**

**THE CAMBPELL SYSTEM OF SOIL CULTURE**

Everybody knows Campbell, the father of dry farming. Everybody knows that he started this great movement for Scientific Farming that is changing the desert into a garden. But everybody does not know that there is a great school, the

**CAMPBELL CORRESPONDENCE SCHOOL OF SOIL CULTURE**

where the Campbell System of Scientific Soil Tillage and Crop Growing are taught by mail, where a thorough knowledge of Scientific Agriculture can be secured without leaving home, at a very small expense. If you are a farmer or expect to be a farmer, send for the Campbell literature, Campbell's Scientific Farmer, the Campbell manuals and a catalog of the Campbell Correspondence School. Sample copy and catalog free. Address

**CAMPBELL CORRESPONDENCE SCHOOL**
**325 Broadway - - Billings, Montana**

**The CANADIAN HORTICULTURIST AND BEEKEEPER**

***The only bee publication in Canada***

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.

Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive and practical monthly magazine.

Well illustrated and up-to-date. Subscription price postpaid.
Canada, $1.00 a year. United States, $1.25 a year. Foreign, $1.50 a year.
Sample copy sent free on request.

**The Horticultural Publishing Co., Limited, Peterboro, Ont., Can.**

**HONEY JARS**

We carry several styles of honey jars, the most popular being the 1-lb. screw cap at $6.50 a gross. If you need shipping cases, we have them. Catalog of supplies mailed upon application.

We have a fair stock of light amber and amber honey. Write for prices.

**I. J. STRINGHAM**
**105 Park Place, New York**
**Home Apiary: Glen Cove, L. I.**

**BEE-SUPPLIES**

Let Us Figure With You

We know we can satisfy you on price and quality. Write for catalog.

**C. C. Clemons Bee-Supply Co.**
**Dept. S., Kansas City, Missouri**

**Paint Without Oil**

**Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.**

**A Free Trial Package is Mailed to Everyone Who Writes**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

**Save Money**

Let me figure on your wants in Bee Supplies. Let me order them shipped from factory direct to you at less than wholesale prices. Send me list of wants.

W. D. SOPER,
The Bee and Honey Man,
Beeswax wanted. Jackson, Mich.

***Hundreds of Thousands***

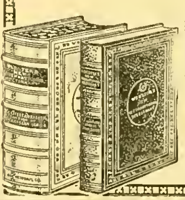
**of WEBSTER'S NEW INTERNATIONAL**

**DICTIONARIES** are in use by business men, engineers, bankers, judges, architects, physicians, farmers, teachers, librarians, clergymen, ***by successful men and women the world over.***

**ARE YOU EQUIPPED TO WIN?**
The New International is an all-knowing teacher, a universal question answerer.

**400,000 Vocabulary Terms. 2700 Pages. 6000 Illustrations. Colored Plates. 30,000 Geographical Subjects. 12,000 Biographical Entries.**

**Regular and India-Paper Editions.**



Write for Specimen Pages, Illustrations, etc. Free, a set of Pocket Maps if you name this paper.

**G. & C. MERRIAM CO.,**
**Springfield, Mass.**

PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

**Beekeeper's Guide**, by A. J. Cook—This book on bees is also known as the "Manual of the Apiary." It is instructive and interesting, as well as practically scientific. It has 544 pages and 295 illustrations. Bound in cloth. Price, postpaid, $1.20; or with a year's subscription to the American Bee Journal, both for $1.80.

**WESTERN BEEKEEPERS!**

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

# Classified Department

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

## BEES AND QUEENS

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

VIGOROUS, prolific Italian Queens, $1.00; 6, $5.00, June 1st. My circular gives best methods of introduction. A. V. Small,
2303 Agency Road, St. Joseph, Mo.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

THREE-Banded and Golden Italian Queens and pound packages in spring, from the Sunny Southland. Grant Anderson,
Rio Hondo, Texas.

FOR SALE—1 to 100 strong 8-frame colonies extra fine strain Italian bees, $4.50 to $5.00 each; all free from disease, with stores for winter; Standard full-depth, self-spacing Hoffman frames; all straight combs in new one-story single-wall hives, f. o. b. here.
Wilmer Clarke, Earlville, Madison Co., N. Y.

MY BRIGHT Italian queens will be ready to ship after April 1 at $1.25 each. Send for price list. Safe arrival and satisfaction guaranteed. M Bates, Greenville, Ala.

PURE 3-banded Italian queens, untested but warranted, $1; 6, $5; tested, $1.50; 6, $8. Last year's tested queens, clipped, $1. Good fat nuclei and full colonies in abundance. Write for price list. J. F. Diemer,
Liberty, Mo.

THREE-BANDED Italian queens from our hardy, vigorous strain of honey producers; untested, one, $1; doz., $9; nuclei and pound packages June 1. Satisfaction guaranteed.
A. E. Crandall & Son, Berlin, Conn.

NOW is the proper time (not tomorrow) to place your order for bees and queens. A postal brings you the story of a pound package of bees.
Rosedale Apiaries, J. B. Marshall & Son.
Big Bend, La.

BEES WANTED—From one to 100 colonies within 200 miles; also used equipment.
John E Geiger, Syracuse, Kans.

BEES AND QUEENS—What a pleasure when you know and I know and the bees know that you have placed your order to be shipped to you in April and May; no war prices. Write
S. Mason, Hatch, N. M.

THREE-BANDED Italians; untested queens in April and May, one, $1; 6, $5; 12, $9. Tested, $1.50 each. One-pound packages of bees, $1.50 each; two-pound packages, $2.50 each. Add price of queens if wanted. If you want as many as 50 packages write for prices and discounts on early orders. Safe arrival and satisfaction guaranteed. No disease, and all queens purely mated.
Cotton Belt Apiaries, Box 83, Roxton, Texas.

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolians. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo, Leon Co., Tex.

## HONEY AND BEESWAX

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

WANTER—Beeswax at all times in any quantity, for cash or in exchange for supplies.
Dadant & Sons, Hamilton, Ill.

CHAS. ISRAEL BROS. CO., 486 Canal St., New York. Established 1878. We are in the market for both comb and extracted honey. Send prices delivered New York; state the quantities you have and how packed, and send samples.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered.
The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Beeswax; we pay higher than market price for good grades light and light yellow wax; get our prices before disposing of your wax. Queen Mfg. Company,
Falconer, N. Y.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa, Monroe, Wis.

BE sure and include the Domestic Beekeeper with your list of bee journals for 1918. The Domestic Beekeeper will help you to dispose of your crop of honey without expense to you; also, buy your beekeeper supplies for you at cost. If you knew all we were doing for our subscribers, you would certainly be with us during 1918 as a subscriber. Can we have the pleasure of entering your name on our subscription list? Address The Domestic Beekeeper, Northstar, Michigan.

FOR SALE—White clover and heartsease blended extracted honey. Send for prices.
W. H. Hyde, New Canton, Ill.

## SUPPLIES

SIBERIAN FUR FARM, Hamilton, Canada, breeds foxes, marten, mink, ermine, skunks and black Siberian hares. Information and price list free. Write address plainly.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

YOU have likely been thinking for some time that you would like to have The Domestic Beekeeper come to you regularly each month, but have been putting it off for some reason or other. We would like very much to have you all start in with us this next year. We are very sure you will not regret it if you make this start. To some of the early December subscribers for 1918, we will send, free, the last three numbers of 1917. If you expect to get in on this back number proposition you will need to be prompt in ordering, as those back numbers are going fast and there will be none when the present supply is exhausted. Address, with remittance, The Domestic Beekeeper, Northstar, Michigan.

FOR SALE—500 Extracting Supers, nailed and painted, with frames; will sell cheap.
A. F Stauffer, Delta, Colo.

BERMUDA GRASS SEED direct from grower 30c lb. Peruvian alfalfa, the variety that grows during the winter, 20c.
B. O. Hadley, P. O. Box 471, Yuma, Ariz.

GOOD second-hand shipping cases for 4¼x1⅞ sections, while stock lasts at 15 cents apiece f. o. b. Cincinnati, in lots of 10 cases or more.
C. H. W. Weber & Co., Cincinnati, O.

FOR SALE—A lot of comb-honey supers, 25 and 35 cents each; mostly with sections and foundation; no disease. Also a large showcase 40 in. long, 36 in. high and 24 in. wide; glass on all four sides. Price $5. A light scale and other supplies.
Chester E. Keister, Clarno, Wis.

SOUTHERN BEEKEEPERS, save money on comb foundation Send me your beeswax to be worked, for cash or on shares. Terms the lowest, and satisfaction guaranteed. Send for terms. E. S. Robinson, Ft. Myers, Fla.

## HONEY LABELS

HONEY LABELS—We have just issued a new and up-to-date catalog of honey labels and stationery. Write for your copy. Neat labels and quick delivery guaranteed.
American Bee Journal, Hamilton, Ill.

## WANTED

WANTED—Bees on shares; extracting outfit.
M. Knudsen, Albert Lea, Minn.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

$1.50 pays for a year's subscription each to The Domestic Beekeeper and the American Bee Journal. You can order them from either office, as you prefer.

IT will be the same to us whether you remit for The Domestic Beekeeper direct to Northstar, Michigan, or whether you send it in with your subscription to the American Bee Journal; only, be sure and include it, as we want every American Bee Journal subscriber to become a Domestic Beekeeper subscriber.

WANTED—One to 100 strong colonies of Italian bees in 10-frame, dovetailed hives.
Bernard Benziger,
Beekman Terrace, Summit, N. J.

WANTED—Extra combs shallow and deep Hoffman frames. Want extracted honey. Send price first letter. V. O. Blaylock.
Roxboro, N. C.

WANTED—25 to 150 colonies of bees.
A. M. Eggerth,
Gen. Deliv., Los Angeles, Calif.

WANTED—We are looking for old bee-books, back numbers of the Bee Journals, issued prior to 1907, etc., for some of our subscribers who wish to complete libraries of beekeeping literature. Just now we want especially copies of Alley's Beekeepers' Handy Book, the second volume of Cheshire on Beekeeping, and copies of Harbison's and Wildman's books. Readers having old beebooks or bee journals which they no longer care for will please write us fully what they have to offer, with prices asked.
American Bee Journal, Hamilton, Ill.

## SITUATIONS

WANTED—A queen breeder for season of 1918; one who understands the business thoroughly and is willing to help in large extracting apiaries. Only a live wire need apply; also a helper in yards. Answer, stating wages required and references. W. J. Oates,
Lompoc, Calif.

WANTED—Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

WANTED—Situation for season of 1918 by an A1 all-round beeman, including queen-raising and the combless package business. Fast worker; no bad habits.
M. C. Ward, Duncan, Ariz.

WANTED—A young man to work on fruit farm and in apiaries all of 1918. Must have a clean moral character, use no liquor or tobacco, and be an industrious, intelligent worker, able to do well what he undertakes. Board and washing and good wages will be paid to man who can fill the bill, and a chance to learn the business from one who has had 40 years' experience and has made good.
Emil J. Baxter,
Care of American Bee Journal, Hamilton, Ill.

WANTED—Practical beekeeper with small capital, to take interest in 500 colonies of bees, and work them. Give references.
G. D. Mitchell,
1421 Josephine St., Berkeley, Calif.

WANTED—Expert comb-honey man, with references, to handle 700 stands of bees. Good proposition to right man.
Hagerman Valley Bee and Honey Co.,
Hagerman, Idaho.

# Crop Report and Market Conditions

### PASTURAGE

At this time of the year there is relatively little that can be said regarding pasturage for next year. In the west, especially, where the main crop is from alfalfa, the conditions in the spring have mostly to do with prospects.

Throughout the north, central west and east, there have been snows which are now melting and will generally insure against drouth of the clover which was beginning to be feared in many localities.

### BEE CONDITIONS

From the questions being received at this office asking how to best feed bees which are short of stores there is an extra large number of colonies that went into winter quarters without enough food to carry them over until the spring. Ordinarily this does not apply to the larger beekeeper who has seen in advance that his bees were supplied. Yet there are a considerable number who, either through neglect or through failure to get sugar, are awaiting the spring with foreboding. An acute shortage of sugar in spring is not expected (see editorial), but should it occur and beekeepers fail to get food for the bees in spring, many bees would die outright.

In Texas the conditions are unchanged. One of the most prominent beekeepers, writing from there, says: "Most of my bees will do well to drag a miserable existence into spring. I have talked with beekeepers from adjoining counties and they tell the same story."

Unless Texas has rain within the next month prospects will be as bad as can ever be expected.

### HONEY CROP

Practically all honey is out of the hands of producers. What little is left is being held to supply local demands or, likely, as a speculation to see how high the prices will go. The demand on the part of foreign governments has made our domestic supply the lowest in years. Then, too, where the sugar shortage has been most acute, honey has had to replace it. One party in the East who had bought considerable honey west to resell, wired to the shippers to hurry shipments through, as the sugar shortage was acute and honey was a necessity.

Two large bottling firms state that they will not have enough honey to supply their trade through the spring and that when their available supply is exhausted they will be unable to buy in sufficient quantities to do any good at any price.

Foreign buyers are still active, although the amounts they are now able to buy are not large. Prices paid for foreign shipment now exceed 15 cents f. o. b. shipping point for white extracted.

### HONEY PRICES

As stated above, foreign buyers are willing to pay at least 15 cents for white extracted f. o. b. shipping point, in car lots. The domestic market exceeded this considerably. One large commission firm on the Pacific Coast has been offering white honey in limited quantities at 17 to 18 cents f. o. b. coast, with amber only a cent or two lower. Prices have been going up regularly.

Naturally retail prices have had to follow. One of our staff bought a 5-ounce tumbler of honey in the South at a retail store for 15 cents.

The comb-honey market is practically bare, though small lots are being offered at about $5 per case.

### INCREASE FOR 1918

The response to the government demand for more honey has been remarkable. All supply dealers report the best demand in years, with many large beekeepers expecting to double their holdings if possible. If bees come out in the spring in anything like normal condition, and if the Southern breeders are not hampered by an unfavorable a spring as in 1917, there is no doubt but that the increase in bees will be enormous, and the increase in honey crop over 1917 is likely to be large, especially since this has not been even a normal year.

**Uncle Sam Says Eat Honey**

**Save on Sugar and Help Win the War**

This will increase the now heavy demand for honey.

It will mean money in your pocket to get a good stock of **KRETCHMER** supplies now, before prices advance further, and work your bees to the limit next season. Freight conditions may be bad in the near future and cause delays. Fix up your order tonight; you may forget it if you wait.

**Kretchmer Mfg. Co.**

**301 Eleventh Ave.** **Council Bluffs, Iowa.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**YOUR PERPLEXING QUESTION**

will undoubtedly be answered in the new bee book, "Dr. Miller's Thousand Answers." For beginner and veteran alike. Not intended to replace other bee books, but to supplement them. Price, postpaid, $1.25, or with the American Bee Journal one year, both $1.75.

**American Bee Journal, Hamilton, Ill.**

**A Business Weekly**

The beekeepers need a weekly paper, giving a weekly review of the markets, crop conditions, shipments, imports, exports and other vital matters influencing the business end of beekeeping.

We have been urged to print one not a bee journal, but a news bulletin). We put it up to you.. If you want it bad enough to pay $2 for it, we will attempt it. It will cost that to keep it independent of and side business or advertising influence

There will probably be the largest production next season the world has ever seen. Better keep in touch with conditions.

Do not send any money, but if you are interested, give us your pledge of support and we will inform you if we conclude to print it.

**Box 225, Redkey, Ind.**

**New York and New England**

Distributors of Lewis Beeware and Dadant's Foundation. We are located on the New York Central, West Shore, Pennsylvania Railroads and Rochester-Syracuse Electric Line. And all Express Companies. Let us quote you on your requirements and mail you our 1918 Catalogue. Also our Beginners' Book.

**THE DEROY TAYLOR CO.,**
**Newark, N. J.**

**I Am Ready to Book Orders Now**

for spring delivery for Italian bees in pound packages at $1.40 per pound. Tested queens, $1.25. Untested, 90c, 6 for $5.00. Safe arrival guaranteed. Free from disease.

C. H. COBB, Belleville, Ark.

# DR. MILLER'S BOOKS IN COMBINATION

WE ARE GLAD TO BE ABLE TO OFFER OUR READERS A SPECIAL COMBINATION PRICE ON THE TWO DR. MILLER BOOKS

## "Fifty Years Among the Bees"
AND
## "A Thousand Answers to Beekeeping Questions"

We also believe that it is to the best interests of every beekeeper to have these two books. Dr. Miller has always been a popular writer. His books are entertaining. But more than this, they come from mature experience and can be depended upon as a guide to both the beginning beekeeper and to the more experienced honey producer.

"FIFTY YEARS" gives the actual experiences in beekeeping of the author who has been engaged in this pursuit for over fifty years. It gives not only his successes, but also his failures, explanations, etc., and special beekeeping fixtures which he has adopted after extended trial.

"THOUSAND ANSWERS" is alphabetically arranged and answers questions of nearly every conceivable angle of beekeeping. It is a compilation of different questions as answered by Dr. Miller in the American Bee Journal in the last twenty-two years.

**"FIFTY YEARS," postpaid, $1.00 . . .**
**"THOUSAND ANSWERS," postpaid, $1.25**
**Our price for both, postpaid, $1.75**

**Both Books and the AMERICAN BEE JOURNAL one year, new or renewal, for only $2.50**

*Send in your order today to*

**AMERICAN BEE JOURNAL, Hamilton, Ill.**

# Are Now Booking Orders for 1918 Spring Delivery

Twenty-two years of Select Breeding gives us Bees of Highest Quality and Vitality.
Largest Package Shippers and Queen Breeders in the South.
**1500 Colonies of Bees and 1500 Nuclei**

**10,000 Pounds of Bees — Annual Capacity — Italian Queens, 15,000**

SAFE ARRIVAL AND SATISFACTION WE GUARANTEE

Our Circular and Price List for 1918 is Now Ready to Mail.

**M. C. BERRY & CO., Hayneville, Alabama, U. S. A.**

---

# NOTICE!
## Beekeepers' Supplies

¶ We are now located in our new plant, equipped with the latest machinery for making Supplies. Write for catalogue, which will be ready for mailing in January.

¶ We can save you money, no matter how large or how small your order is. A trial will convince you—Quality First.

¶ We are also equipped to render your Wax from old comb and cappings. Our charge is only 5 cents per pound for the Wax rendered. Our steam press extracts every particle of wax possible to get.

¶ Give us a chance to bid on your wants. Write for catalogue today. All correspondence cheerfully answered.

**THE M. C. SILSBEE CO.**
**AVOCA, NEW YORK**

---

A NEW BOOK

# Our Backdoor Neighbors

By
FRANK C. PELLETT

"I have read 'Our Backdoor Neighbors' with great pleasure, and my small boys also liked it very much. The chapters on hawks are certainly a most valuable and unique contribution to ornithology, and one, I should say, which will not be duplicated for many a long day. No one could help reading the chapter on squirrels, the skunk and the rabbit, once they had begun them.

"How many hours and how much careful observation this book represents no one but a naturalist can guess. Such books do an untold amount of good in awakening a new interest in nature and in leading others to study and observe. It is upon the study of nature that the progress of the human race depends.

"JOHN H. LOVELL, Waldoboro, Maine."

**Cloth, 210 pages, profusely illustrated with photos from life.**
**Price, postage paid, $1.50**
AMERICAN BEE JOURNAL, Hamilton, Illinois

---

Mention American Bee Journal when writing advertisers

---

# OLDS' Seed Book

**and Packet Flower Seed FREE**

FOR 30 years I have sold **reliable seeds.** Thousands of customers testify to this. My seeds not only grow, but produce big yields. They must make good or I will. 31st annual catalog now ready. Write for copy.

**Lists All Kinds of Farm Garden and Flower Seeds**

The best arranged, most comprehensive and easiest catalog to order from ever issued. A few specialties are:

**Certified Seed Potatoes**
**Wisconsin Grown Seed Corn**
**Pedigreed Oats and Barley**
**Wheat, Speltz, Rye, Buckwheat**
**Northern Clover and Alfalfa**
**Tested Garden and Flower Seeds**

Send postal today. Mention this paper. Will include packet flower seeds.

L. L. OLDS SEED COMPANY
Drawer 12 MADISON, WIS.

Olds'
1918
Seed
Book

---

# 20 Packets Seeds—10c

We want every reader to test **"HARRIS SEEDS THAT HUSTLE."** Send 10c. now—before you forget for this mammoth collection. We send you 20 separate packets finest varieties—one each—of **Beets, Carrot, Cabbage, Celery, Cucumber, Lettuce, Cress, Muskmelon, Watermelon, Onion, Parsley, Parsnip, Radish, Salsify, Spinach, Tomato, Mixed Poppies, Giant Cosmos, Double Jap Calendula** and **Children's Botanical Garden,** a curiosity collection of flower seeds. With this collection we send rebate check for 10c. and big catalog of world's finest seeds.

HARRIS BROS. SEED CO., 184 Main St., Mt. Pleasant, Mich.

---

Write for Price Li and
Booklet descriptive of
**HIGH GRADE**
**Italian Queens**
And Bees by the Pound
**JAY SMITH**
**1159 DeWolfe St.**
**Vincennes, Ind.**

---

## Three-Banded Italian Queens and Bees

I am now booking orders for spring delivery of my best superior breeders. They are gentle, hustlers; winter well, not inclined to swarm. There has never been any disease in my apiaries. Untested, 75c; 6, $4; 12, $7.50; 100, $60. Select untested, 90c; 6, $5.25; 12, $10; 100, $75. Tested, $1.25; 6, $7.50; 12, $14. Select tested, $2 each. One-pound package without queen, $1.25; 12, $14. Two-pound package without queen, $2.25; 12, $26. When queens are wanted with pound packages, add queens at prices quoted above. Five per cent discount on all orders received before February 1. I guarantee safe arrival and perfect satisfaction.

S. D. CHEATHAM,
Route No. 4, Greenville, Ala.

MARSHFIELD GOODS

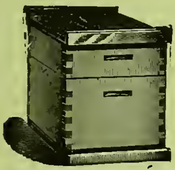
BEEKEEPERS :—

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality ; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section-holders** and **shipping cases.**

Our catalog is free for the asking.

**MARSHFIELD MFG. COMPANY, Marshfield, Wisconsin**



EARLY ORDER DISCOUNTS WILL

**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

A BIG STOCK OF

BEE SUPPLIES

All boxed, ready to ship at once—Thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds -- 100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send me a list of what you want. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

**CHAS. MONDENG**

159 Cedar Lake Road MINNEAPOLIS, MINN.

**PORTER** BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
PATENTED

For sale by all dealers.
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lewistown Illinois, U. S. A.
Please mention Am. Bee Journal when writing.

**FREEMAN'S FARMER** North Yakima, Wash.

Successor to Northwest Farm and Home
69 YEARS OLD

If you want a descriptive and agricultural magazine, it will inform you all about the methods in the Pacific Northwest.
Send One Dollar and have the magazine sent for one year. Cut rate of one-half price now on.

ORDER YOUR

BEE SUPPLIES

EARLY

We want you to have our catalogue. Send for one.

**AUGUST LOTZ COMPANY**
BOYD, WISCONSIN

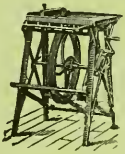
CARL F. BUCK
The Comb Foundation Specialist
AUGUSTA, KANSAS
Established 1899

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4.25; doz., $8.00; select tested. $1.25.
Package bees, $1.25 per lb. Including untested queen, $2.00 per lb. Order early.
My package is light. Saves you bees and express. Prompt shipment; safe arrival and perfect satisfaction guaranteed. No disease.

J. F ARCHDEKIN,
Bordelonville, Louisiana

**BARNES'** Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS

**THIS IS THE**
**"SIGN" ON EACH**
**CYPRESS BOARD**

S C
No. of Mill
M A

TRADE MARK REG. U.S. PAT. OFFICE

**DON'T GUESS**
**MAKE SURE.**
**"HAVE A LOOK"**

CYPRESS "THE WOOD ETERNAL"

For all uses that invite decay (for instance, bottoms) demand

**"ALL-HEART"**

*"Tidewater" Cypress*

*"THE WOOD ETERNAL"*

The "arrow" on the end of each board identifies the genuine product of the cypress mills whose CHARACTER of timber, methods of manufacture, and complete responsibility enable them to be members of the Association.

THIS FACT IS YOUR PROTECTION.

ACCEPT NONE BUT TRADE-MARKED "TIDEWATER" CYPRESS

CYPRESS DEFIES DECAY

**SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION**

1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's. If he hasn't it, LET US KNOW.

---

## Beekeepers, We are Ready!

We are ready for the biggest year in the history of beekeeping—ready to serve the beekeepers of America more promptly than ever, and with equally as good goods as ever. We have anticipated the beekeepers' wants for the big coming year of 1918. The high price for honey, and the prosperity of most beekeepers in 1917, led us to begin filling our big warehouses with beekeepers' necessities last fall. That's why we are ready now.

## Don't Delay

You beekeepers have never before had the promise of so prosperous a year as the one that lies before you. Not only the high price of honey, but a patriotic duty urges you to produce every pound of honey possible in 1918. To this end you should make sure of your supplies NOW. Freights are slow, and may be slower by next spring. The freight congestion of the past season may be repeated in even worse degree. DON'T be one of those beekeepers whose bees will have to wait on delayed shipments.

## Do This Today

Send us today a list of your needs, and ask for our new beekeepers' supply catalog. We are ready to make a close estimate, especially on the earliest orders. Don't wait—don't delay. Do it today.

Remember that we absolutely guarantee our goods to be manufactured perfectly of best material. As always, if in any instance our goods are not found to be exactly as represented by us, money will be refunded and all transportation cost paid by us.

Order standard goods, if possible, and serve your own convenience by ordering either from us direct or from the nearest Root service branch or agency.

ROOT SERVICE BRANCHES

New York, 139-141 Franklin St.
Philadelphia, 8-10 Vine St.
Chicago, 215 W. Ohio St.

St. Paul, 290 E. Sixth St.
San Francisco, 245 Mission St.
Norfolk, Va., 10 Commerce St.
Los Angeles, 948 E. Second St.

Syracuse, 1631 W. Genesee St.
Indianapolis, 873 Mass. Ave.
Mechanic Falls, Me.

THE A. I. ROOT COMPANY
MEDINA, OHIO

# AMERICAN BEE JOURNAL

FEBRUARY, 1918

FEB 5 - 191

Apiary of C. D. Mize at Mt. Hope, Kan. Kansas is Fast Becoming a Bee State.

# *Special Subscription Offers*

OF THE

# *American Bee Journal*

IN COMBINATION WITH BEE BOOKS AND MAGAZINES

In order to give subscribers a chance to get a good Bee Book and effect a saving at the same time, we are giving below our special offers on such combinations.

Anyone desiring description and summary of different Bee Books should ask for our book catalog. It is sent free.

## The Most Popular BEE BOOKS

| | Book alone postpaid | A. B. J. 1 yr and Book postpaid |
|---|---|---|
| Bee Primer | $ .15 | $1.00 |
| First Lessons in Beekeeping | 1.00 | 1.75 |
| Thousand Answers to Beekeeping Questions (Miller) | 1.25 | 1.75 |
| Langstroth on the Honey Bee—Revised | 1.50 | 2.00 |
| Langstroth—Reprint of Original Edition | 1.00 | 1.75 |
| Doolittle—Scientific Queen Rearing | .50 | 1.25 |
| A Year's Study in the Out Apiary (Doolittle) | .50 | 1.25 |
| Productive Beekeeping (Pellett) | 1.75 | 2.50 |
| Fifty Years Among the Bees (Dr. Miller) | 1.00 | 1.75 |
| Beekeeping (Phillips) | 2.00 | 2.50 |
| A. B. C. and X. Y. Z. of Bee Culture (Root) | 2.50 | 3.00 |
| How to Keep Bees (Comstock) | 1.00 | 1.75 |

Canadian Postage on Combinations, 15c extra; Foreign, 25c.

## Magazines in Combination

AMERICAN BEE JOURNAL One Year—

| | |
|---|---|
| With Fruit Grower | $1.25 |
| With Green's Fruit Grower | 1.25 |
| With American Poultry Advocate | 1.25 |
| With Poultry Success | 1.25 |
| With Farm Journal (5 years) | 1.50 |
| With Successful Farming | 1.25 |
| With Farm and Fireside | 1.25 |
| With Ladies' Home Journal | 2.50 |
| With Little Folks | 1.85 |
| With American Boy | 2.00 |
| With Ohio Farmer | 1.25 |
| **With Country Gentleman** | **2.00** |
| **With Youth's Companion** | **2.75** |

Canadian and Foreign Postage Extra.

## OTHER BEE BOOKS

IN COMBINATION

| | Book alone postpaid | A. B. J. 1 yr. and Book postpaid |
|---|---|---|
| Advanced Bee Culture (Hutchinson) | $1.00 | $1.75 |
| Life of the Bee (Maeterlinck) | 1.50 | 2.25 |
| Manual of the Apiary (Cook) | 1.20 | 2.00 |
| Quinby's New Beekeeping | 1.00 | 1.75 |
| Townsend's Bee Book | .50 | 1.25 |
| Southern Bee Culture (Wilder) | .50 | 1.25 |
| Lore of the Honey Bee (Edwards) | 2.00 | 2.75 |
| Bee People (Morley) | 1.50 | 2.25 |
| Bee Master of Warrilow | .60 | 1.50 |
| Queenie | .75 | 1.50 |
| Alexander's Practical Writings | .50 | 1.25 |
| Biggle Bee Book | .50 | 1.35 |
| British Beekeepers' Guide | 1.00 | 1.75 |
| The Honey Bee (Cowan) | 1.00 | 1.75 |
| Irish Bee Guide | 1.10 | 1.85 |
| Waxcraft (Cowan) | 1.00 | 1.75 |
| Modern Bee Farm | 2.00 | 2.75 |

Canadian Postage on all Combinations, 15c; Foreign, 25c.

## Bee Paper Combinations

American Bee Journal, one year, $1
Gleanings in Bee Culture, one year, $1
**Both $1.50** Canadian postage 40c extra

American Bee Journal, one year, $1
Domestic Beekeeper, one year, $1
(Formerly Beekeepers' Review)
**Both $1.50** Canadian postage 20c extra

**All Three Bee Papers as above for $2.25**
Canadian Postage, 65c.

*Send us a list of books and magazines you want. We will quote our best prices.*

Our regular subscription prices on American Bee Journal are, 1 year, $1; 2 years, $1.75; 3 years, $2.50; 5 years, $4.

SEND ALL ORDERS DIRECT TO

***AMERICAN BEE JOURNAL, Hamilton, Ill.***

## Poultry Supplies

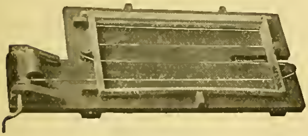
**Poultry supplies of all kinds, best automatic grain feeders, fountains, feed troughs, dry mash hoppers, bone mills, exhibition and shipping coops, leg bands, shell, grit, bone, meat, foods, and remedies ANYTHING YOU WANT. Also Pigeon, Kennel and Bee Supplies. Circular free.**

**Eureka Supply House**
**Box B-403 - Aurora, Illinois**

## New York and New England

Distributors of Lewis Beeware and Dadant's Foundation. We are located on the New York Central, West Shore, Pennsylvania Railroads and Rochester-Syracuse Electric Line. And all Express Companies. Let us quote you on your requirements and mail you our 1918 Catalogue. Also our Beginners' Book.

**The Deroy Taylor Co.**
**NEWARK, N. Y.**



PATENTED
**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2.50, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calf.**

BUY

## THE FAMOUS DAVIS GOLDENS

**And get big yields from gentle bees. Write for Circular and Price List.**

**BEN G. DAVIS,**
**Spring Hill, Tennessee.**

**NOTICE—Special Sale on Sections**

No. 1 Beeway $6.00, No. 2 $5.50 per 1,000
No. 1 Plain $5.75, No. 2 $5.25 per 1,000

All other supplies at a reduced price. Get your orders in when you see this.

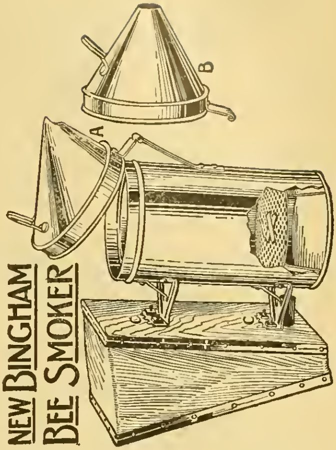
The Old Bee and Honey Man,
W. D. SOPER,
425 Liberty St., Jackson, Mich.

## New Bingham Bee Smoker

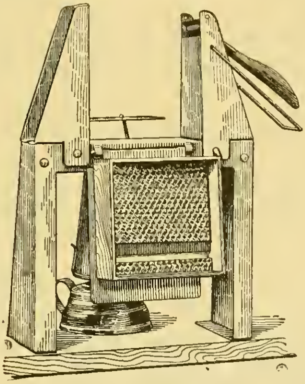
In 1878 the original direct draft bee smoker was invented and patented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly thirty-five years, and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name in the beekeeping industry.

Bingham Smokers have been improved from time to time, are now the finest on the market, and for nearly forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies, or direct from the manufacturers.

Smoke Engine, 4-inch stove........28 oz. $1.25
Doctor, 3½-inch stove ..............26 oz. 1.00
Two larger sizes in copper extra.
Conqueror, 3-inch stove ............23 oz. .85
Little Wonder, 2½-inch stove....16 oz. .65
Hinged cover on the two larger sizes, postage extra.



**A. G. WOODMAN CO.**
**Grand Rapids, Mich.**



### WOODMAN'S SECTION FIXER

A combined section press and foundation fastener of pressed steel construction. ONE OF THE GREAT ADVANTAGES this machine has over all others on the market in the putting in of top and bottom starters is, YOU ALWAYS HANDLE LARGE PIECES OF FOUNDATION. You know how hard it is to set small, narrow pieces for bottom starters. With this machine a large piece of foundation is set and the hot plate is again used to cut it off, leaving the narrow bottom starter. What is left of the large piece is then set for the top starter.

Price of machine, $3; with lamp, $3.40. Weight, 5 lbs.; postage extra.

THIS IS THE ONLY MACHINE ON THE MARKET from which the section always comes away right-side up, with the large piece or top starter hanging down. It does not become loosened in reversing, as with other machines.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

## Tin Honey Packages

**YOU WILL MAKE A MISTAKE** if you do not ask for our **Low Prices on** Friction Top Pails and Cans. We are **Saving money** for car load buyers and others of smaller lots. Why not you?

Our three-year contract is enabling us to make prices considerably under general market quotations. Let us hear from you, specifying your wants.

### Friction Top Tins

| | 2-lb. Cans | 2½-lb. Cans | 3-lb. Cans | 5-lb. Pails | 10-lb. Pails |
|---|---|---|---|---|---|
| Cases holding | 24 | 24 | --- | 12 | 6 |
| Crates holding | --- | --- | --- | 50 | 50 |
| Crates holding | 100 | --- | 100 | 100 | 100 |
| Crates holding | 603 | 450 | --- | 203 | 113 |

### Sixty Pound Square Cans

We are now booking orders and making shipments of 60-lb. cans from several different factories about the country. We believe it would be a wise idea to secure your supply early, as we have been told that the supply of tin plate will not take care of the demands. Ask for prices, stating quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

# The Guarantee that Made "falcon" Bee Supplies Possible

The "falcon" GUARANTEE. Every hive, every super, every crate of sections, every pound foundation, every article, and every queen leaving the "falcon" plant goes out with our "absolute satisfaction or money back" guarantee. For more than a third of a century we have stood behind everything we sell. If anything is wrong or not just what you thought it would be, we'll appreciate it if you will write us, and we'll make it absolutely right at our expense. Our satisfied customers are to be found everywhere, and our best advertisement. "Once a customer always a customer," is synonymous with he name "falcon"

The beekeepers' past experience when "short" should have taught him that it's a "wise move" to get hives, sections and supplies ready in the next two months. We will be glad to quote on "falcon" supplies if you will send us an approximate list of what you will require for the coming season.

**Red Catalog Postpaid** **Dealers Everywhere** **"Simplified Beekeeping" Postpaid**

**W. T. FALCONER MFG. CO., Falconer, New York**

*Where the good bee-hives come from*

# Bee Supplies Bee Supplies

**READ — ORDER EARLY**

Owing to the congestion of freight and embargoes, we caution all beekeepers to get their order in early, otherwise you will suffer a great loss when you actually need goods, and you perhaps will be unable to get them for the above reasons. We have a large stock on hand, and can fill orders promptly, provided the railroads will accept freight.

*Send for our new catalog.*

**C. H. W. Weber & Company**

**2146 Central Ave.** **Cincinnati, Ohio**

# TENNESSE-BRED QUEENS

**45 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to July 1 | | | July 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested ... | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $13.50 | $1.00 | $ 5.00 | $9.00 | $ .75 | $ 4.00 | $ .75 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 | 1.00 | 5.00 | 9.00 |
| Tested ........ | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 | 1.50 | 8.00 | 15.00 |
| Select Tested ... | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 | 2.00 | 10.00 | 18.00 |

Nuclei (no queen) 1 fr., $1.50; 2 fr., $2.15 ; 3 fr , $2.75; 4 fr., $3.50; pure 3-band Italians. Select queen wanted; add price.

**Capacity of yard, 5000 queens a year**

**Select queen tested for breeding, $8**

**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

**IOWA AND ILLINOIS BEEKEEPERS**

**Save Time and Freight**

By Buying

**LEWIS BEEWARE**

and

**DADANT FOUNDATION**

OF US

**Full Line of Bee Supplies**

High-Class Goods
Prompt Service
Courteous Treatment

1918 Catalogue
sent on request

**LOUIS HANSSEN'S SONS**

213-215 West Second Street
DAVENPORT, IOWA

**Bee Hives and Supplies**

OF ALL KINDS

Discount for early orders. A book on how to handle bees, 27c by mail. Instructive catalog free.

**J. W. ROUSE, Mexico, Mo.**

# FIGURE IT for YOURSELF

> Dadant & Sons, Hamilton, Ill.
>
> Dear Sirs: Tell M. G. Dadant that DADANT'S FOUNDATION is the best. I made the test as he suggested, every other sheet Dadant's, and another concern's foundation in between, and the bees worked DADANT'S first.
>
> WILL JACOBS, Hedrick, Ind.

Suppose *Dadant's Foundation* saves the bees one day's time in the midst of a honey flow. What would you save by using it? Even if it saved only one hour's time, wouldn't it be cheaper for you? Remember, *Dadant's Foundation* costs no more. It really costs less.

SEND FOR OUR 1918 CATALOG AND SPECIAL LISTS.

## DADANT & SONS

HAMILTON, ILLINOIS

*We make and sell DADANT'S FOUNDATION*
*We render old combs into Beeswax*
*We work Beeswax into Foundation*
*We buy Beeswax for cash or trade*
*We sell a full line of Bee Supplies*

# *ANTICIPATE*
# *Your 1918 Bee Requirements*
# *NOW!*

**HELP US CO-OPERATE WITH THE GOVERNMENT BY ORDERING YOUR BEE SUPPLIES FOR NEXT SEASON NOW!**

Transportation conditions may not permit of prompt shipments later on. Now, of all times, the Beekeeper **should not put off until tomorrow what he can do today.** You owe it to your country and to yourself to prepare at once for the gathering of the nineteen eighteen crop.

**Have You Enough Hives?**
**Have You Enough Supers?**
**Have You Enough Frames?**
**Have You Enough Sections?**

And have you enough of the rest of the things you will need?

THE LEWIS FACTORY IS NOW OPERATING NIGHT AND DAY TO TAKE CARE OF THE SEASON'S DEMANDS

Help us while we are helping you. Place your orders now, so manufacturers and dealers can help their country --- your country, you and themselves, by preparing now for your needs.

THE NEW LEWIS CATALOG
IS NOW OUT

## G. B. LEWIS COMPANY

*Manufacturers of Beeware*
*WATERTOWN, WISCONSIN*

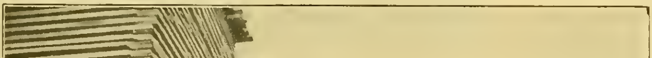
AMERICAN BEE JOURNAL

VOL. LVIII—NO. 2 HAMILTON, ILL., FEBRUARY, 1918 MONTHLY, $1.00 A YEAR

# ON THE SUPPLY MAKER'S TRAIL

## No. 1.---Making Hives and Sections

BY FRANK C. PELLETT



HUNDREDS OF CARS OF LUMBER ARE MADE INTO HIVES

THE boss down at the office is always thinking up something new to keep the staff correspondent busy. When the mail man comes I find it is always well to have my hat handy, for there is no telling where he will be sending me next. Not long ago he got the idea that maybe the readers of the American Bee Journal might be interested in knowing how bee supplies are made. He accordingly wrote to me to see what I could find out about the making of beehives, smokers, extractors, honey containers and a few other things of use to the beekeeper. The idea was all right, and I started in very dutifully to see what there was to be seen around the different factories. But neither the boss, nor I either, for that matter, counted on some of the plans of the women folks at our house. Oh, yes, I heard the wife and her unmarried sister whispering mysteriously about gowns and preachers and other things that have to do with weddings, but I was entirely too much interested in finding out how bee supplies are made to pay much attention to what they were doing. Now, when a fellow starts out to investigate anything having to do with bees, he can never tell how long he will be gone. These good women folks felt very sure that I would get around in plenty of time, since I was not going so very far anyway. Well, after two or three weeks they got uneasy for fear that I would stray off and not get home in time for the party which they had in mind, so they began to follow me up with urgent messages, to the effect that my presence was very much desired at home. Anyway, I got home in time for the wedding, with not much time to spare, but I did not get much more than half way around the circle of finding out how bee supplies are made. After the girl was safely married and started off in the automobile with old shoes and other useful decorations tied on behind (yes, it is the same girl that we had on the front cover among the flowers in November, 1915), I began to wonder how much I had really learned about how bee supplies are made.

Some of the big machines used at some of the factories do so many things that I never could quite understand it all, even when I was looking at them with a guide at my elbow to explain the whole thing. Not being much on mechanics anyway, I fear that what I did not learn on the subjects assigned me would make longer stories than the things I did.

When one watches the bees busily working at the entrance of a hive under an apple tree in somebody's back yard, he is inclined to think of honey production as a small business. But when he gets into the big factories, where hundreds of men are hustling to turn carloads of lumber into hives, sec-

PART OF BIG BEE SUPPLY FACTORY.

tions and other equipment; where big saws are buzzing and boards zipping through the planers, and dozens of freight cars on the siding are being loaded with supplies for all parts of the country, one gets a new view of the business. There are many factories, large and small, devoted to the manufacture of bee supplies. These are distributed from New York to California, so that even in the largest factory, one sees but a small part of the business.

The G. B. Lewis Company's plant at Watertown, Wisconsin, is one of the largest in the world devoted to the manufacture of hives and other beekeeping equipment. It is a very interesting little journey to follow a load of boards from the time they enter the factory until they are made into hives and packed into crates, ready for shipment to the apiary. Machinery has added much to the comfort and convenience of the everyday life of modern times. When our grandparents were forced to make everything by hand, even the clothing from the time it was sheared from the sheep's back, they had little time for recreation, and few were the comforts which they were able to afford. Under modern conditions, one man with a big machine can do the work of twenty-five by hand, and thus the conveniences and comforts of life are multiplied in like proportion.

THE OUTGROWTH OF A LITTLE MILL ESTABLISHED IN 1864.

When G. B. Lewis started his little mill at Watertown in 1864, it is probable that never in his wildest dreams did he picture the outgrowth to be such a big and complete plant as is now run by his son, G. C. Lewis. Mr. Lewis, the founder of the business, died in 1903, but the business has continued to grow under the management of his son. A daughter, also, Mrs. Parks, is interested with him in the business. Her son, Mr. L. W. Parks, is superintendent of the factory. The growth of the business during the past two years gives an idea of the growth of the beekeeping industry during the same period of time, for all manufacturers report a similar increase in demand for bee supplies. The prospect is that the increase will be even greater during the coming five years. The Lewis factory increased its output 30 per cent during 1916 over the previous year; 1917 increased 50 per cent over 1916, and the plant was not able to care for anywhere near all the orders, even by running a night shift. As will be seen by the picture, the main factory is a very large, fireproof structure with fine lighting, and the most up-to-date machinery for saving labor. Only a small part of the plant could be shown in one picture.

So great has been the demand for supplies that much difficulty has been experienced in getting suitable raw material. Lumber has advanced in price 50 per cent the past season, all wages are higher, and metals have increased 300 per cent. The advance of metal prices has been so great as to become prohibitive for some purposes, and metal covers will probably be less used until the close of the war. As a matter of necessity, these increased costs of material and labor must be added to the cost of the finished product, so that the beekeeper must pay higher prices for his hives. Fortunately, however, honey has also advanced, so that the beekeeper is as well off as before. In spite of the greatly increased prices of bee supplies, the manufacturers claim to be turning them out at a much smaller profit than ever before. They are able to do this by adding high-speed machinery, which greatly increases the output of the factory without additional labor. The machinery used in this factory for making beehives costs in the neighborhood of $30,000, yet one hundred

THE OFFICE IS SEPARATE FROM THE FACTORY.

THE LUMBER IS WHEELED TO THE FACTORY ON THREE-WHEELED CARTS

men, by its aid, can do as much as two thousand men working with hand tools. The saving in wages of this large number of men will very soon pay the cost of the big machines. To get it down to a fine point, the machine can do, for three cents, what it costs seventy-five cents to have done by hand. This is the reason that few beekeepers can afford to make their own supplies. They are not only better made by machinery, but a man, working by hand, can never compete with a machine which does the work of twenty-five men.

Let us follow a load of basswood lumber through the mill and see what happens. The boards are wheeled into the factory on three-wheeled carts that carry a wagon load of lumber at one time. For making sections, absolutely clear lumber is used. First every board is planed to fit a gauge, so that all are exactly alike. The basswood boards are twenty-nine thirty-seconds of an inch in thickness after coming from the planer. All knots are cut out, and waste wood is used for other purposes requiring small pieces of indifferent quality. Motor-driven mandrils now plane each edge, above and below, and cut each strip into five parts. There are seventy-five saws on each machine. The strips are then run through a sander to polish both sides and cut into 17-inch lengths for sections. At this stage the pieces are sorted by hand into grades, for no machine has yet been perfected which will sort out the off-colored pieces. After the pieces are graded they are clamped into bundles of 100 and the various cuts necessary to make them into finished sections made quicker than it can be told. The dovetails are cut at the ends by rapid saws, the V grooves by a scoring machine, and the beeways by rabbets. These machines have an automatic feed, and the machine counts them, also, ringing a bell for every crate of 500 finished sections. It only requires three men to attend this machine. One supplies it with lumber, one fills the crates and the third nails the crates up ready for shipment. The machinery necessary to manufacture sections in this rapid manner cost in the neighborhood of $10,000, but with it three men are able to do the work of 100 men by hand labor. The fact is, that it would be almost impossible to make good sections by hand. The one machine turns out 64,000 every ten hours.

Hives may be followed through the big factory in similar manner, although the process is much the same. The lumber is first planed, and cut clear, edges are planed and the boards are cut into short lengths, to fit the hives. We have some way come to demand dovetailed corners in all our beehives, although it is quite possible that well boxed corners would do quite as well. In order to satisfy this whim on the part of the beekeepers, it is necessary to install a Morgan lock-corner machine at a cost of $1,300, which cuts the dovetail so evenly that there is not a miss in a hundred hives.

Small pieces of boards are worked into end bars and frame parts. The top bar is cut out entirely complete at one operation. Take a look at a thick top bar from a Hoffman frame and try to imagine what an ingenious machine is necessary to turn the trick. To describe it so it could be understood would require a better reporter than I. I could not even figure the thing out when I saw it working.

Every machine in the big factory has its own individual motor, thus doing away with hundreds of belts and tons of shafting and overhead pulleys. In one corner is a repair shop in charge of an expert mechanic. Here necessary repairs are made for the machines without leaving the building, and with the least possible delay.

After all, beekeeping is not a business to be sneezed at, when it takes several hundred carloads of lumber yearly to keep one factory busy turning out supplies. After we have pasted a few million more of the "Eat Honey" stickers on our outgoing mail, we will have to enlarge all the factories and start more to supply enough hives to hold the bees necessary to meet the demand for our product.

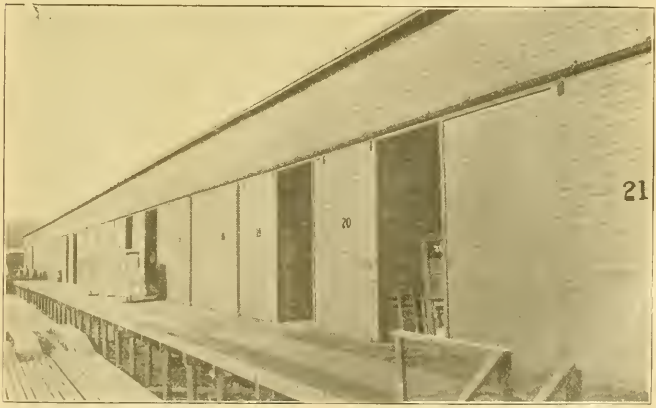
---

**Northern Wisconsin Meeting.**—The annual meeting of the Northern Wisconsin Beekeepers' Association was held at the court house here Saturday, Dec. 29, 1917. Dinner was served by the ladies of the association and was very much appreciated. An address was given by Professor Mathews, of the U. S. Agricultural Department, on Wintering Bees and Increase of Honey production. Some important bee problems by Jas. Chief, a local and up-to-date beeman, were discussed. Co-operation for better results in beekeeping, diseases in bees, frames, combs and using foundation, also were touched upon by Professor Mathews. The following officers were elected for the ensuing year:

President—H. H. Schroeder.
Vice President—James Chief.
Secretary-Treasurer—E. H. Marsh.
Directors—Otto Klessig, Joe Croterfeil and C. S.Leykom.

Honey is very scarce here now, extracted bringing from 20 to 30c a pound.

E. H. MARSH,
Sec'y.



THERE IS ROOM TO LOAD A WHOLE LINE OF FREIGHT CARS FROM THE WAREHOUSE AT ONE TIME.

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
**First Nat'l Bank Bldg., Hamilton, Ill.**

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS.—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which show that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

### Federal Supervision of Queen Breeders

There has been much complaint of the spread of foulbrood and other diseases through the purchase of queens. A few years ago a new postal regulation required that all queen breeders secure a certificate of health from some authorized inspector. This provision was waived when it was shown that many States had no inspector. However, the provision requiring the boiling of honey for thirty minutes, from which candy is made to stock the cages is not sufficient protection. Apparently it insures safety from the spread of American foulbrood, but there is much evidence to show that European foulbrood or paralysis may be spread by queens and their attendant bees shipped through the mails. The late O. O. Poppleton attributed his difficulties with paralysis to the purchase of queens and found it necessary to re-queen with different stock to eliminate the disease. He felt doubly sure of the source of infection when he brought the disease to his yards the second time with queens of the same stock bought from another breeder.

Most of the queen breeders do the bulk of their business outside the State in which they are situated. Being an interstate business, queen breeding should have federal supervision. Now that the department is adding a number of expert beekeepers for the extension service, some plan might be worked out whereby federal inspection could be secured. The total number of queen breeders engaged in commercial sale is not large, and greatly increased confidence on the part of the purchasers would result from such a plan.

While several of the States maintain rigid inspection of queen yards, several States have no such inspection, and those which have do not have uniform regulations. The safety of the future of the industry depends much upon placing proper safeguards about the shipping of bees and queens.

### Comb Honey Losing In Popularity

The high price of extracted honey is having the effect of leading many beekeepers to give up the production of comb honey. Of late we have heard of several well-known comb-honey specialists who have already made the change, or who are preparing to do so with the next crop. At present, the difference in price between comb and extracted honey is slight, as compared to the increased cost of producing a fancy article of comb. The confidence of the public in extracted honey is largely the result of the pure food laws. Since adulteration is no longer possible to any large extent, we look for extracted honey to displace comb honey in many markets. So many beekeepers are making the change that the shortage of comb honey may be so pronounced that the price will advance sharply, for there are many consumers who will take it in no other form.

Under present conditions there is more profit to be made in the production of extracted honey.

### Advance of Beekeeping

Everyone sees evidence of the dawning of a new day for beekeeping. Honey production is developing from a fad into a commercial enterprise, which is rapidly growing in importance.

Whereas, ten years ago two or three agricultural colleges gave courses in beekeeping, now more than twenty are giving attention to the subject and some of them give it the prominence of a separate department. This indicates a greatly increased interest and demand for information on the part of the public. The U. S. Department of Agriculture has greatly increased the staff of men engaged in the beekeeping work, with a prospect that still more men will be added to meet the increased demand for help from every section of the country.

The agricultural press is devoting far more space than formerly to beekeeping subjects, and the newspapers give more prominence to the doings of the beekeepers. Everywhere new organizations of beekeepers are springing up, until it is difficult to keep in touch with them all. Beekeepers' conventions and field meetings are now held in so many localities that there are few beekeepers no longer within reach of the bee meetings.

Honey is higher in price than for many years past. This is due to the war, in large measure, but thousands of people are learning to use honey who have not been in the habit of using it in the past. This insures a greatly increased demand for years to come. The prospects for beekeeping were never so bright.

### Isle of Wight Disease Another Remedy

S. H. Smith, in the British Bee Journal for November 29, mentions another remedy for Isle of Wight disease that we had not yet read about. It is "acriflavine" (diamino-methyl-acridinium chloride). A quarter grain of the drug dissolved in a quart of water was sufficient for a dozen colonies, sprayed over the bees, combs, floor and brood-chamber walls, as well as over the crawlers around the hives. A week later the treatment was repeated. "Those bees were not treated again. All survived and gave surplus."

### The Master of Beekeeping

The first issue of the American Bee Journal, which appeared in January, 1861, contained the following:

"He may be regarded as a master in bee culture, who knows how to winter his stocks in a healthy condition, with the least loss of bees, the smallest consumption of stores, and with the combs unsoiled."

The same is still true, for in the Northern States wintering is the most serious problem which the beekeeper has to meet.

# Beemen of the Present---M. H. Mendelson

By W. A. Pryal

AMONG the many beekeepers in California who have produced honey on a large scale few have exceeded the operations of Mr. M. H. Mendelson, whose apiaries have done much to make Ventura county famous as a honey-yielding section of the Golden State.

It was in the early winter of 1892, I believe, that I first met Mr. Mendelson at a meeting of beekeepers in Los Angeles. At that time he began to agitate for beekeepers of the State making a presentable exhibit of their apiarian resources at the Columbian Exposition to be held the following year in Chicago. And a year or two following he did his utmost to make the beekeepers show at the Midwinter Exposition to be held in San Francisco during 1894 a success.

M. H. MENDELSON IN WORKING GARB. One of his hired men is gathering the "Queen Crop."

He also worked strenuously to have a creditable exhibit of California's bee products at the great exposition of 1915. He had outlined a plan that would have done credit not only to our apiarists, but those of all the world. But through the meddling of others, the plans had to be abandoned, and there was no exhibit of the apiarian industry worthy of the name, though a few individuals and firms made good scattering exhibits of bee supplies.

While on my trip through California south of here, in 1916, I made it a point to visit Mr. Mendelson. I hoped to find him at his big apiary some two and one-half miles south of Piru, but on enquiring at the largest store in that town as to the best auto road to take, I was informed that he had left that location a day or two previously for his Ventura place.

A VENTURA COUNTY BEAN FIELD—And there are miles and miles of them. How doth the busy bee and the buttery Lima Bean that helps make everything so sweet and hopeful.

At Fillmore I thought I would take a run out to see the McIntyre apiaries. I was told that it was not likely I should find Mr. McIntyre there; that the bees were being attended to by his wife and daughters. I did not try to find the location. Later I learned why Mr. McIntyre suspended apicultural operations. I was sorry to hear of this and I trust he has been able to take up the pursuit in the large way that he had conducted it so successfully for over a quarter of a century. As it was, I learned that the women folks of the household managed the bees as competently as of yore, and why not? Who in the country could be more competent than the daughter and granddaughters of the late R. Wilkin?

Our trip from Fillmore to Ventura, or rather for many miles west of the former town, was over one of the vilest roads we ever traveled. The main highway was under reconstruction, and a Mexican we met at the crossroads gave us wrong directions as to the best temporary route.

On the State highway something less than three miles east of Ventura, we found what Mr. Mendelson calls his camp. While I had written to Mr. Mendelson that I hoped to call upon him on my way home, he did not recognize me, neither would I have known him should I have chanced to meet him in town or on the highway. Nigh a quarter of a century had made changes in us both.

Some 200 colonies of bees had been moved into the place a few days previous to our visit, and the hives were arranged all around the house and outbuildings. Some of them had swarmed, even as late as the latter part of August, when we were there. One of the little girls of our party discovered a swarm hidden away among the leaves of a large palm tree.

Many of the colonies were used for queen-rearing purposes. The ten-

FLOWERING PLANTS AND FRUIT TREES GROW ALL ABOUT MENDELSON'S COTTAGE BEE-CAMP

ONE OF MENDELSON'S APIARIES IS IN A BLUE GUM GROVE IN THE CENTER OF EXTENSIVE BEAN FIELDS.

frame Langstroths were so divided that they made three or four compartments, in each of which a queen was raised to egg-laying maturity. Mr. M. had two men assisting him and when we called he was filling an order for a hundred or more Italian queens. The main object in moving the bees to this location is to take advantage of the bean fields, Lima beans being grown extensively in the coast portion of Ventura county.

Mr. Mendelson reports that the season of 1916 had been a poor one at the Piru apiary; that that good sage range did not give him a half carload of sage honey. A part of this apiary was moved to the bean fields. From this source he secures a fair crop, unless the fall is continuously foggy.

Some of the canyons in this portion of Ventura county are among the very best sage-honey yielding locations in California. The pity is that so many years prove failures. Too often a full crop is secured only once in five years, though at times every third year is a satisfactory one. Mr. Mendelson's honey crops have averaged better, I believe, than have the crops of many other beekeepers in the county. This is because after the sage honey is in, he moves a portion of his big apiary to the low lands where the bees can collect the nectar from the bean flowers. I did not secure data as to Mr. Mendelson's harvests for the years he has been engaged in apiarian work in California, but I believe his best yield was from thirty-five to forty tons. He has been in the State thirty-seven years, coming here from New York State, where he was born about 64 years ago. He had quite an extended knowledge of bees before coming to the Land of Sunshine, Flowers, Fruit and Honey; his father had kept some colonies and young Mendelson as a child acquired an enthusiastic love of bees and nature.

The equipment of the bee ranches run by this man is probably the most extensive of its kind in California. Some twelve thousand dollars would hardly cover the cost of bees, fixtures, etc. At the Ventura plant, the big honey-extractor is driven by electric power, current being obtained from the local power company. Here we saw the great big "road-schooner" he uses to transport his bees from one apiary to another, as the honey flow warrants. And in his stables we saw several powerful specimens of horse flesh that were beauties. They are the motive power for propelling the aforesaid "road-schooner."

Mr. Mendelson complains that one of the great obstacles he has to contend with is getting suitable help in the apiary. I presume, since this country has entered the world war, it will be harder the coming season to secure assistance in the larger apiaries.

While I found our host such an enthusiastic apiarist, I found him also interested in plant life. The soil about his Ventura place is of a rich, sandy loam and well watered. It is ideal garden soil. Here he was growing a large number of plants that I have been interested in for years, especially gladiolus. Many of his trees and plants are rare; some almost tropical. To name them would be like setting out to make a plant catalog.

Herewith I present some views I obtained at the home camp; also some I obtained of his Piru apiary and one of his apiaries when the bees were picnicking among the beans. Some beeman truly is M. H. Mendelson and may the flowers for years to come be nectar-laden, that the myriads of bees from his hundreds of hives may sweeten his way through the rest of his life's journey.

Oakland, Calif.

THE IRON FIRE-PROOF EXTRACTING ROOM AND STOREHOUSE COMBINED AT THE FAR END OF THE GARDEN

## Boys' and Girls' Bee Club

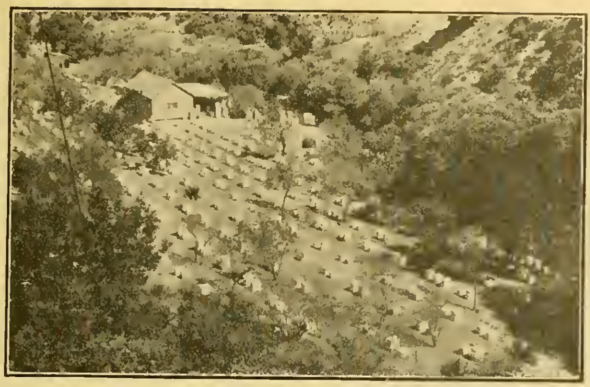
By J. H. Merrill, in Charge of Apiary Work, Kansas State Agricultural College

DURING the winter of 1916-17, the Lyon County Boys' and Girls' Bee Club was organized by Charles A. Boyle, district club leader, and Herbert Popence, county agent for this Kansas county.

Mr. Boyle's purpose in organizing the club was not to increase the number of beekeepers but to make better beekeepers out of those already possessing bees. Instead of having one or two neglected and almost forgotten boxes of bees hidden away somewhere under a tree, it was planned to give these bees a new home, decent treatment, and make them pay their own way, thus justifying their existence.

When it came to purchasing equipment it was found that this would be divided into two classes—one to include large articles to be used in common, and the other individual equipment which each club member should use.

In the first class were included text and reference books on beekeeping, as well as the leading magazines. The tools which were necessary for assembling hive parts were also in-



MENDELSON'S PIRU APIARY

cluded in this class. Some of the members were to raise extracted honey, and since an extractor was rather expensive for an individual club member to own, the club purchased the extractor and all equipment necessary for extracting.

Each club member was urged to subscribe to one bee journal and, if possible, secure a text book. Gloves, veils, smokers, hive tools, hives and hive parts, including supers, frames, sections, foundation, bee escape boards and queen excluders, were secured by each member for his individual needs.

Since the object was to make better beekeepers rather than more beekeepers, it was planned to have each member make his start with a colony of bees, secured, if possible, from his parents. By so doing it was intended to make a practical demonstration, not only to his parents but to others, of just what could be accomplished by using modern methods and intelligent care in handling the bees.

The club opened in the spring of 1917 with twelve members. Four of these were obliged to discontinue, but the other eight remained enthusiastic members throughout the season.

In order that an exact rating should be given to each member, the hive with which he had started was examined and a value placed upon it. In making this examination the condition and strength of each colony, the race, age and prolificness of the queen, and the condition of the hive and hive parts were all taken into consideration. If a colony was in an old box hive, which would later have to be changed to a better hive, it received a lower valuation than it would have had it been already in a modern hive.

After each colony had been appraised and its value recorded the club was ready to begin work. Mr. Boyle and Mr. Popence demonstrated how the hive parts should be put together, how many nails to use and where they should be used, and how to paint them so as to have all of a uniform color.

Those who were going to raise extracted honey learned how to make extracting frames and how to fasten in the foundation which was used to secure straight comb. Those who were interested in producing comb honey learned how to make the sections and how to fasten in the little sheets of wax or "starters."

Those who had colonies in old boxes were shown how to transfer them to modern hives with movable frames. After the bees were housed in their new homes they could be examined at any time, because the frames in these hives could be removed at will.

As the work progressed new problems constantly presented themselves and Mr. Boyle and Mr. Popence were kept busy throughout the summer answering questions and solving problems.

After the honey season is over, there is a valuation to determine the standing of each club member. Each contestant must submit an itemized account of all his expenses and receipts. Then his colonies are examined along the following line: (1) the number of colonies; (2) the strength of each colony; (3) the number of bees in each colony; (4) amount of stores; (5) improvement in the race of bees, and (6) possibilities of wintering.

The standing of each contestant is determined by adding the total receipts to the value of the colonies, minus the total expenses.

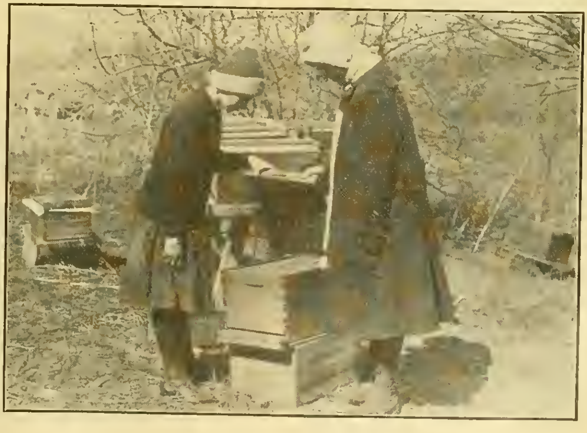
Although the summer of 1917 was, in general, a poor season for honey, yet several members of the Boys' and Girls' Club did very well. They not only secured very creditable crops of honey, but also learned a great many facts about beekeeping. At the close of the season each contestant wrote the story of his summer's work. These stories made more than ordinarily interesting reading.

Ezra Palmer's father gave him a colony of bees in an old box hive with which to make a start. Ezra bought a standard hive, supers and other necessary equipment.

In the fall he sent a frame of honey from his colony to the State Fair at Topeka, for which he was awarded a $3 premium. In addition to this he sold 100 pounds of honey for $20, making a total income of $23. As his total expense was $4.73, his total profit from his one colony of bees was $18.27. Joseph W. Stout secured a yield of 115 pounds of honey and was given an award of merit for his honey exhibit at the State Fair at Hutchinson. Clarence Gladfelter also did well, as he took 81 pounds from his colony of bees.

The work of the club was so successful and attracted so wide attention that the members have decided to take advantage of this publicity and market their product under a club name.

Already fourteen new members have been enrolled for next year and there are at least fifty who wish to join the club. The older members will take up some of the more advanced problems of beekeeping. Such



MEMBERS OF THE LYON COUNTY BEE CLUB HAVE A GREAT INTEREST IN BEEKEEPING problems are the best methods of making increase artificially, naturally, or by using pound packages, whether comb or extracted honey should be produced in their region, etc. There are 2,000 colonies of bees in Lyon county and it is planned by the club to secure and handle some of the colonies which would otherwise be neglected. Such a move will not only show the owners of these colonies some of the modern methods of handling bees, but should prove very remunerative to the club members.

Manhattan, Kans.

## Another Advertising Objection Answered

By Chilton Gano

A NATURAL doubt raised in the mind of a beekeeper, when it is proposed that an association of beekeepers enter upon national advertising of a branded honey, is whether such a brand would fare well in competition with local honey in various sections. In other words, is sectional feeling so strong in various localities that people will prefer to patronize independent producers of honey in their own locality? This is a point that should not be ignored, by any means.

The experiences of a number of concerns shed light on it, that of the Northwestern Fruit Exchange, now advertising "Skookum Apples," probably giving the most conclusive answer. If local, unbranded products offer dangerous competition to a nationally advertised product, then surely "Skookum Apples" would have suffered from such competition, because apples are known in nearly every State in the Union.

Yet Skookum went clear across the continent from its home in the northwest, and did its first experimental advertising in New York City, right under the noses of New York apple growers, and the advertising was highly successful Altogether, about $15,000 was spent in advertising this brand of finest boxed apples in New York City. The advertising was unique in that it educated the public as to what are the most nutritious and highest quality varieties of apple, their proper seasons for use, and how to secure appetizing variety in their use. Twelve varieties of apples, claimed to be the best varieties in every way, are packed under the Skookum label. The strictest grading rules possible insure that only extra fancy apples go into the packs. Such facts as these, together with appetizing illustrations and the offer of the recipe booklet, soon won their way with the New York public, and today Skookum apples sell at a premium in New York and are even named on the menus of many leading hotels and restaurants. Today practically no New York apple can command the same price as Skookum apples, in New York City.

A little over a year ago, in the fall of 1916, the Exchange, convinced that national advertising would succeed as well as local advertising had in New York, appropriated $60,000 and began advertising in national magazines, mainly with color advertisements on cover pages. Before the advertising was begun big fruit jobbers throughout the country were canvassed for advance orders, proofs of the proposed national advertisements being carried in portfolios by the canvassers as a selling argument. These advance sheets of the campaign made so profound an impression on the trade that the company's representatives were in some cases invited to address meetings of retailers, while actual advance orders for Skookum apples totaled several hundred cars. Prices were to be agreed upon before the fruit was ready for harvest. In addition to the magazine advertising, newspaper and street car advertising were used in selected cities, while trade papers copy supplemented the personal salesmanship to the trade.

At the close of the first year of national advertising General Manager Gwin, of the Exchange, said: "For a national campaign our fund would ordinarily be called small. Yet Skookum apples are today talked of in America on a par with Gold Dust, Shredded Wheat, Crisco, or any other advertised commodity. Conservatively estimated by advertising people, the growers' investment in Skookum good-will represents a value tremendously in excess of the cash spent. This fund made for Skookum a dominant position in the apple world that will not be wrested from it."

The most convincing evidence of success is that the apples are actually featured by fruit dealers in every large city and that the Exchange has increased its advertising appropriation.

This experience would seem to indicate that Americans are not too sectionally clannish, but that anything American, whether from Maine or Texas, will sell readily to all Americans if attractively presented to them. Branded foods usually find their first and most econominal markets in the larger cities of the country, and in larger cities the insistence on locally produced products is not found, which sometimes obtains in rural communities.

Another experience comes to mind which illustrates the truth of this—that of the Blue Valley Butter people. Blue Valley sells readily in the larger cities throughout the country, but it makes little effort to enter the small country towns, because of the competition of local country butter. Even in this case it is the attitude of the country grocer, not the consumer, which is most discouraging. These grocers buy their butter from farmers whom they know and who are their customers, and they are afraid to offend these farmers by carrying city-manufactured butter. Yet this small town obstacle has not prevented Blue Valley from building up a most enviable reputation and a most lucrative and tremendous business.

It may be said, in fine, that Americans don't ordinarily ask what state a product comes from, provided they have been appealed to by the product itself, its name, personality, and the conditions under which it is packed.

In closing a word about the organization of the Northwestern Fruit Exchange may be of interest. It was incorporated in 1890, to perform for local apple growers' associations of the Northwest what the C. F. G. E. performs for the California orange growers. About twenty-five local associations are now within the Exchange, which has come to control probably the largest apple tonnage of any organization in the world, i. e., between 30 and 35 per cent of the entire tonnage of the four great apple States of the Northwest. Only about one-fourth of the Exchange's apples are high grade enough to make the Skookum brand, and it is doubtful if more than 1,500 cars of Skookum will be shipped in 1917-18, though the Exchange markets, all told, over 4,000 cars of apples annually.

The Exchange has not its own sales organization, but markets through the North American Fruit Exchange and Sales Agency of America, an agency which has a national organization and markets fruit for other associations, also.

Skookum
Hey! Skinny—
Skookum
Skookum Apples
Skookum
Skookum

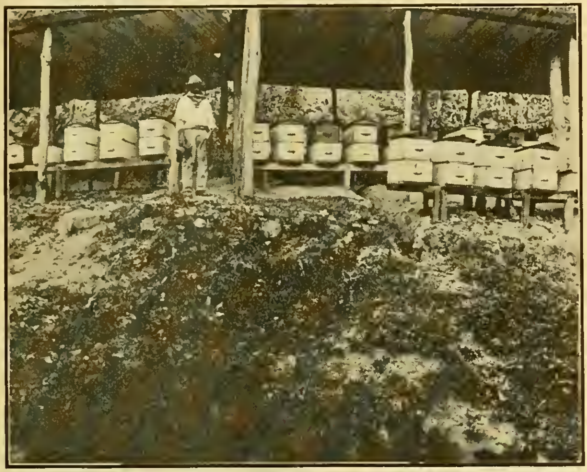
ATTRACTIVE SAMPLES OF ADVERTISEMENTS OF SKOOKUM APPLES.

# Porto Rico Beekeeping

By Henry Brenner

MY brother beekeepers who think me in Porto Rico will be surprised to see these lines dated from Santo Domingo. I certainly had a fine time in Porto Rico and enjoyed very much my experiences, the land, people, scenery, and especially my observations on Porto Rican beekeeping. I do not think that from November, 1916, till September, 1917, I ever spent more than two days at one time in towns, always in camp and apiaries in different places. The best kept apiaries I visited were those of Dr. Henry Smoyer in Naranjito and Corozal; the Warner apiaries in Comerio, Sabana, Naranjito and Aguas Cuenas; Rudolfo del Valle's two up-to-date apiaries in Ponce, and Wm. De Chaberts' in Rio Piedras.

These gentlemen are experienced beekeepers and some belong to the pioneers. Every one of their apiaries has an extracting house, dwelling house for the manager and his family and a reservoir to catch the rain water. Two and four-frame extractors, capping melters, honey tanks I have also noticed.



DON RODULFO DEL VALLE'S APIARY AT PONCE, PORTO RICO

In the Smoyer apiaries they use steam heated uncapping knives. The apiaries are without exception well kept and clear of grass and weeds and the hives well painted.

In the Warner apiaries I started extensive queen rearing from Texas queens I brought along from home. In March or April Mr. Warner sent the first small shipment of 25 queens to New York and received orders for all the queens he could send at once. Of course, we needed the young queens ourselves to build up the colonies and to re-queen and for increase.

For every apiary I found queen—or better-honey excluders and escape-boards in use. I discarded both. When the hands were done extracting I let them rest a day or two and started anew. With my powerfully strong colonies and a young, vigorous queen and only one or at most two supers, we kept continually at it. We picked out the ripe honey, shook the bees off and replaced right away with empty comb. In some of the apiaries where the hands followed my instructions, rearing cells, making the virgins in the supers and extracting we more than doubled the honey yield. I also made the acquaintance of smaller beekeepers and beginners.

In the parts of Porto Rico which I visited the main honey-flow starts in June and ends in September, and it is possible to keep the bees continually at work if proper attention is paid to the brood-nest and the queen.

The main sources of nectar are the shade trees in the coffee plantations. Coffee blossoms several times and yields nectar also. Wild flowers and numerous shrubs and bushes produce nectar and pollen also. In the citrus plantations the flow is during the bloom and is very heavy, but of short duration.

I opened thousands of hives in Porto Rico and a good many here in Santo Domingo, but have not found a single diseased colony. In one of the apiaries I saw in January bees crawling along the ground showing decided symptoms of paralysis. I examined the colonies and found, in two, fermented honey of sour taste. I marked these colonies and found at my next visit the honey good and sweet and not a sign of paralysis.

A large business can be built here in the Tropics in shipping combless bees in pound packages. The only precaution to be taken is to ship gentle bees, not the vicious brutes or hybrids. I intend to go into this business in Santo Domingo and have already ordered more breeding queens from Texas.

DON RODULFO DEL VALLE.

One of my proudest days in Porto Rico has been when Mr. Henry Smoyers visited me and told me that he succeeded in getting more queen cells, and good ones, introduced in the supers and had a larger percentage of matings than myself.

I have now been five weeks in Santo Domingo and had the good fortune to meet with Dr. Maldonado in Sanches, in whose apiaries I am trying my hand at present. Have queens laying in the supers already, from hybrid queens I brought along from Porto Rico, and am waiting for my Texas queens to improve the bees faster.

DON RAFAEL SERRA AND HENRY BRENNER IN DON RODULFO DEL VALLE'S APIARY.

WARNER APIARY AT THE FOOT OF A STEEP MOUNTAIN, SABANA, PORTO RICO.

Honey conditions here, land property, etc., I will mention in my next.

I wish I could get Dr. Maldonado and Don Rafael Serra in Ponce, personally acquainted with one another. I never met two gentlemen so alike in education, taste and culture. I hope when Don Rafael sees these lines he will write the doctor a letter, as only he can do it. He will get an answer that will please him.

Sanchez, Santo Domingo.

## The Future of Beekeeping in Florida

By J. J. Wilder

FLORIDA, as a whole, has no great future for beekeeping. No one can drop down in the State at any old place with a solid car of bees and expect to succeed, much less to locate and start in and build up. This has been tried, to the sorrow of many. By far the larger part of Florida will not support bees. Of course, there are bees kept most all over the State, but not at a real profit, all told. As many colonies die as are made, and as much money lost in bees as is made, if not more. This not only applies to farmers who keep bees, but apiarist as well. The number of new ones to give it a trial is increased a little each year as population increases, which keeps some life in the industry and thus it moves on. There are many reasons for this great blank spot of Florida for beekeeping, but I will name only a few.

First, the scarcity of honey plants. We might say that at least this condition covers half of the State. For the most part this is an open pine country and prairie. Next we come nearer the streams and where the country has been thinly settled and they have planted small groves of citrus. Here the bees will store some surplus, some years, but most of the seasons end in a failure for surplus; but bees with proper care will tide over. Then there come seasons of no honey as often as seasons with yield, and the bees have to be fed back nearly all the surplus or they will die out wholesale. So there is but little gain for the honey producer. This partial or total failure is due to excessive drought or rainfall, and freezes.

Next we come to the streams of salt water and the sea. Here we find the most honey plants, and chances are better for a surplus for the hard-working apiarist. Yet failure in obtaining surplus stares him in the face and is his greatest dread. He plays even about as many seasons as he gains, but if he lives economically he has a support almost continually except years of total failure, when he may have to do some other work to help pay his bills for feed for his bees. Failure here is due to weather conditions, same as in any other section.

In a very few counties in the high sand ridge section of cut-over pine land along northern central portions of the State the partridge pea grows extensively enough to give a yield, with conditions entirely different from those of other parts of the State. The flow comes in midsummer and only a drought will check it. But when drought prevails there is another honey plant growing along with it known as "summer farewell," which only yields under very dry weather conditions. Here we have a surplus every year, but never great, the average being around 30 pounds per colony, and here bees are always in safe condition, in the hands of farmers or apiarists, but the average yield is so low that one has to keep lots of bees in order to make a living, and, of course, a large amount of capital is tied up. Yet bees never breed up very high in this section, and an apiarist can care for many colonies.

We now come to the best section in the State for beekeeping, which is the tupelo gum region, and is only a very small speck on the map; extending up and down the Apalachicola river and also a small strip on the Ocklocknee river, both of which head up in Georgia and flow down through the western portion of the State, emptying into the Gulf of Mexico, but some forty or fifty miles before they reach it they greatly widen out over the low, flat country with almost no banks, the main channel breaking up and winding about in small streams and in some places this bed of streams is ten miles across. Here in this overflowed section both the white and black tupelo gum grow in all their glory and make the beekeeper's paradise in Florida. The most unfortunate thing about it is its being a desolate, lonesome swamp, and the only means of transportation is by boats, but they have a regular sched-

DWELLING HOUSE AT CUENAS, PORTO RICO. At the top of the hill are dwellings for the peons.

ule boat line operating up and down the rivers. Then the beekeepers have their own private small gasoline boats, used mostly for passenger service, as the larger boats land for honey at the apiary docks, which are built along large getatable streams. These boats are very accommodating to the beekeepers, as their revenue comes mostly from them. These beekeepers have homes up the river where the boats have a landing at the main land, and there their families reside all the time, while the beekeepers themselves play up and down the river in their small boats, looking after their bee interests during the busy season. Their apiaries, together with honey houses and small living quarters, are the most noticeable objects up and down the rivers, setting high up on scaffolds above high water mark. These beekeepers are the most prosperous citizens of that country and beekeeping is looked upon by all as a great business. They are very congenial towards each other and one never places bees on another's territory, and when a stranger comes in with his bees and puts them down near some one of them, there is great commotion among them all, and they see to it that he moves them off. In this section there are many good unoccupied locations for apiarists, but they are not so convenient to reach, owing to the lay of the streams and main land out from them. Nearly all good locations in easy reach are stocked. However, all locations could be reached with little difficulty by land or water.

It is here Florida has the greatest future in beekeeping, and if it was well stocked the output would be enormous. Great progress in beekeeping of late is fully under way there and the early honey market nearly all over the United States feels the effect of their output.

Bradentown, Fla.

DR. SMOYER'S APIARY AT NARANJITO, PORTO RICO.

## Beekeeping for Women

Our esteemed friend and correspondent, Ph. J. Baldensperger, of Nice, France, writes an interesting appeal, entitled "Revictualling," which we translate in part from "L'Apiculteur" of September-October, 1917:

During these times of penury in sweets, it is pleasant for us beekeepers to see the bees praised as auxiliaries in the service of mankind, in the present world catastrophe. As long as it is only our bee magazines who try to place the bee and its products in the front ranks, we see nothing extraordinary about it, for it is, as usual, the corporation of producers who defends its products. But when the daily press gets interested in the matter, we have good cause to be pleased with this forward movement. This world commotion was required to take beekeeping out of the shadow in which it stood behind its sisters in "ing."

A large American daily which I read a few days ago calls the bee "our recent recruit," and a Boston professor makes a warm appeal to the public in favor of beekeeping. He quotes the statistics of the Washington Government to show that the United States produce only 300 million pounds of honey for a population of 100 million, 3 pounds per head.

What then will we say of the crop of our "belle France," as our friend Dadant calls her? We reach a production of 22 million pounds for a population of 40 million, or about half a pound per head. There must be inequality of distribution, for what would a beekeeper do with only half a pound of honey to eat annually? Is it not high time for us to go about praising the value of the honeybee, since with the present shortage of sugar there is no need of great eloquence to persuade the consumer that he must eat honey, because of its healthfulness?

The prophet Mohammed gave the name of the honeybee to one of his 114 Suras, although this chapter contains only two or three stanzas relative to bees. He recommends honey, of which he was very fond. He says: "The Lord prompts the bees to make their homes in the mountains, in the trees or in the bushes, to feed upon the products of the trees and to follow the way that the Lord teaches. A product comes out of their body, a liquid of varied colors, which contains a human remedy."

The mystic appeal of the prophet should be modernized for our cities and our country. With a little thought and some reasoning, we will finally give beekeeping the place which it occupied formerly.

I was called lately to a country place to dislodge several swarms which had taken possession of a villa. I hastened to answer the call, in spite of my crop work, in order to be of service to some of the "women of France" who are now struggling magically to help French agriculture.

However, I have not quite as much "enterprise" as a veteran beekeeper mentioned to me by a Piedmontese, who is hardly as famous, as a liar, as the inhabitants of Tarascon. This veteran, he says, having discovered bees in a hollow rock in the bluffs of the Alps, hired, one day, seven mules to transport the necessary ropes for the assault. The king, Victor Emmanuel II, having heard of the caravan, joined the expedition. The big cavern, according to my Tartarin story-teller, contained thousands of swarms. Several men were required to gather the honey in large tubs and let it down with ropes. After a few hours of watch of this wonderful work, the king became tired of it and asked to be let down. But the veteran was unwilling to dispense with the flattering presence of the king, and continued to gather the Pactolian flow. But let us leave them with their seven mules, to come back to our villa.

Some swarms were situated against the sash of a window and obscured the room. Others had located between the floor and the lower ceiling. These charming bees belonged to a swarm of as charming young ladies. Blondes and brunettes had protected their heads with scarfs which made a great diversity of colors. They were greatly interested in the work. After having carefully smoked the bees at the entrances, I tore out some boards and went to work. For four hours, kneeling down before this treasure, once in a while I pulled out a great comb of honey and handed it to my enthusiastic lady beekeepers. Anyone witnessing the work from the forest across the hill might have supposed that I was a faithful Hadji, starting for Mecca and kneeling to Allah to ask for a successful voyage. The pilgrimage was certainly crowned with success, and at sight of combs of honey four feet in length by one foot in depth, I felt like using the Moslem expression: "Tabarak, Allah," (What a blessing, Allah). Had it not been for the occasional stings and the unpleasant posture, I might have believed myself in the Paradise of Mahomet. Think of those pretty girls and their artistic conversation and that stream of white honey! If we did not have seven mules, we had at least seven tubs of fine honey, all evidently gathered from the numerous basswood trees of the public drives. An old Italian woman, who transported the honey in a little hand-cart, had some difficulty in keeping all the recipients aboard, and as she tried to straighten up one of them, at the foot of the hill, she touched with her finger a bee which she thought dead. "Ah, la Carogna e encora viva!" "Ah, the carrion is still alive!" cried she, as she was stung on the finger.

We finally dipped out some of the combs with a skimmer, but a shovel would have been better, and we at last left the balance because they were too far. The swarms had been there since the beginning of the war, and one could see the 1914 combs of dark color, those of 1915 and 1916 of light brown, and the 1917 combs of immaculate white. I secured about 12 combs of brood from each swarm, and the ladies had a long job straining the honey.

As the Vestals were too numerous to keep up the sacred fire properly, the smoker was run very intermittently and there were more stings than there should have been had the smoke been produced judiciously. Then the bees were too numerous and scattered over too large a space, for they occupied over 9 feet each way.

The ladies promised to continue the study of beekeeping, reading good practical works and periodicals. Although the evenings are short in summer, each is anxious to discuss bees and to put her acquired knowledge to the service of "revictualling." If they only scatter a few hints among their friends and neighbors, it will be just so much gain for all.

Beekeeping by the women, who do so much work already, will help bring the world back to its own. How many brave women are seen to sow, plow, harvest, haul the crops, while the men have harder tasks! No; beekeeping is not too difficult, nor too tiresome for women. With a good smoker, half of the work is mastered. The other half will soon be done through good teachings. Before proceeding to keep bees, they must use good judgment, learn the value of a colony, how to hive or transfer it with progressive and judicious development.

Theory and practice in right proportions are absolutely necessary to succeed. The heavy tasks, such as hauling honey, may be done by others. But we must not figure that all there is to it is to allow the bees to harvest the honey and then for us to take it away from them with a good smoker. We must know the conditions and time of development, the obstacles, the inclemencies of the weather which retard or arrest the cultivation, and all essential requirements for success.

Study the flora, to have an exact idea of its yield. Many blossoms yield little or no honey.

Ladies, and you also, gentlemen, go into the keeping of bees. You will find a few spare hours which will give you satisfactory results, if you do not neglect them. If it is too late for this year, try and have bees for a crop next year.

---

# Notes On Honey Plants

By L. H. Pammel

### Buckbrush or Indian Currant and Snowberry

BERRY AND LEAF OF THE CORAL-BERRY.

THE SNOWBERRY IN BLOOM.
(Photographed in the field.)

Most beekeepers living in the region where grows the Indian currant, coral-berry or buckbrush *(Symphoricarpos orbiculatus* Moench*)*, appreciate the importance of this plant as a honey-producing species. Two other species of the genus *Symphoricarpos* are well known as buckbrush. The common wolfberry *(Symphoricarpos occidentalis)* is the species so common in western Iowa, north to Minnesota and North Dakota, south to Kansas and east to Michigan. It is the most common species in the Missouri river basin and is very common on the loess bluffs of the Missouri, where it answers the same purpose that the hazel does in the north. The snowberry *(S. racemosus)*, which somewhat resembles the preceding, has large white berries and is a striking object in late summer and fall. There are two varieties of this species. The variety *laevigatus* has long been cultivated. The variety is, however, less widely distributed in nature than the species. The snowberry of the north *S. racemosus*, has a wide distribution, from Quebec to Alaska, Massachusetts, northern Minnesota, the Rocky Mountains and California. The snowberry of Iowa furnishes a large amount of excellent honey during the summer. It remains in blossom for a long time. The flowers of this species are more conspicuous than those of the coral-berry. The coral-berry is native to Iowa, as far north as Story county; along the Missouri river it reaches farther north. South Dakota is given in the manuals, but I have my doubts about the species extending very far into South Dakota. It is fairly common in the vicinity of Council Bluffs and also in Polk county. It blooms later than the snowberry and where the two species occur together there should be continuous honey flow. The flowers of the coral-berry are much smaller than those of snowberry, whitish and red with a slight rose color. The cell-shaped corolla is five-lobed with five stamens inserted on the corolla between the lobes. The nectar occurs in abundance on the lower part of the corolla tube, below the hairy style. The flowers occur rather abundantly on the axils of the leaves, pointing away from the lower surface of the leaves. The bee must enter the flower from below. The honey is, therefore, not as easily accessible as in some other flowers. I have watched bees for several weeks gather the nectar from these flowers. Although white clover was in bloom, the bees seemed to prefer the buckbrush or coral-berry in the autumn. The coral-berry should be valuable as a honey plant southward to Texas. It is regarded as a weed by many farmers in southern Iowa. The strong, vigorous shoots of the plant are used for making baskets, in Arkansas, where the country folk make a unique basket of good quality. Mr. Simmonds, the landscape artist, is using this species to a considerable extent as an ornamental plant. For this purpose it is a highly desirable species.

**Horsemint**

Many years ago, when I became interested in bees on a Wisconsin farm, we used to look forward to the blooming of the horsemint *(Monarda punctata)*. This plant could always be counted on to yield an abundance of nectar every season. Much of the sandy prairie about one and one-half to two miles from our apiary was still unbroken and this plant grew in abundance. I sent a note on the value of this plant as a honey plant to the American Bee Journal. The plant was identified, Vol. 15, page 540, by Dr. J. W. Beal, of the Michigan Agricultural College, as *Monarda fistulosa*. The identification by Dr. Beal is an error. The plant in question is *M. punctata*. The perennial horsemint is minutely downy, with lanceolate petioled leaves. The lanceolate bracts are yellowish or greenish yellow and purple. The flower is yellowish, the upper lip spotted with purple. The plant is found on sandy soil from New York to Wisconsin and Minnesota, to Texas and Florida. In the more southern region the annual lemon mint *(M. citriodora)*, occurs, which is perhaps also valuable as a honey plant.

In a recent visit to La Crosse and Onalaska, Wis., I noted that bees abundantly visited the horsemint. The bees were so abundant that it sounded like a swarm. This horsemint is not common in Iowa, only occurring in the sandy region along the Mississippi, the Wapsipinnicon, Cedar and Iowa rivers. I know of no plants in central Iowa. In western Wisconsin and eastern Minnesota it is common on the sandy jack pine and oak barrens.

The wild bergamot or horsemint figured by Mr. Pellett on page 132 of the American Bee Journal for 1915, is correctly called *Monarda fistulosa*, but the plant which produces the honey for bees is the *Monarda punctata*, which is a much better honey plant so far as bees are concerned. The statement made by Mr. Pellett on page 132 of the American Bee Journal for 1915, is a very general statement. I am inclined to think that bees do not get very much honey from *Monarda fistulosa*, notwithstanding the opinion expressed by some that they do. It is a regular bumblebee flower. At one of the meetings of the Iowa State Beekeepers' Association a Mr. Brown from Sioux City, I think, made the statement that this plant yields honey for bees. I am inclined to think the plant referred to by Mr. Brown is not the wild bergamot or horse mint *(Monarda fistulosa)*. It may have been the *Monarda punctata*, which is a regular honeybee flower.

HORSEMINT—(Monarda Fistulosa.)

Common names are often misleading and lead to erroneous conclusions. The manuals give wild bergamot as *Monarda fistulosa*. In Iowa and Wisconsin, however, the *M. punctata* is known as wild bergamot, and the manuals give this as horse mint. Our Iowa horse mint *(Monarda fistulosa)*, and this applies to some other northern regions, is not adapted to honeybees. It is adapted to bumblebees. The nectar is out of reach for honeybees. The flowers are lilac or pink and in the northern Rockies, in northern Wyoming are a very deep pink. The *Monarda punctata* has become a plant of considerable economic importance because it contains considerable quantities of thymol, which before the war was largely imported from the continent of Europe. It would seem that large sandy areas might very profitably be cultivated with this plant, yielding not only thymol, but an excellent honey.

# Watch for Starvation in Spring

By G. C. Greiner

WHAT I expected and feared on account of the unusual warm spell last winter came to pass in a limited way, and it was only my timely attention that averted a dire calamity.

It is very seldom that I disturb my bees before they are unpacked and placed on their summer stands about May 1. Unless something unforeseen takes place, something like the aforementioned emergency, I cannot do them any good until the season is far enough advanced to begin spring management. Besides, packing them in chaff, as I practice it, does not admit easy access to the hives; it requires some preparations to reach them, which are not desirable at this time unless strictly necessary.

Judging from the unusual display of young bees whenever a fair day induced them for their customary play spell, I concluded that heavy breeding must have reduced their stores to the danger point of starvation. As my anxiety to ascertain the condition of my bees grew stronger from day to day, on April 7, the first suitable day for the operation, I examined every colony in the yard. Previously, on another suitable day for that work, I had taken the precaution to prepare the bees for this examination. All the chaff packing above the honey-board (inside cover) I had gathered up and placed in sacks, which I keep for this purpose, and after being filled, I had again put them in the place of the removed chaff. While this does not conform exactly to the theory of perfect airtight winter protection it retains the heat of the hive during cool spring days and nights quite well. By simply taking the sacks from the hives I had ample opportunity to open the hives for the intended purpose.

Of course, I did not disturb them more than was necessary to make a superficial estimate of their supplies. The result of my investigation proved my correct conception of the situation. Over one-half of the yard was either starving or starvation was knocking at their doors.

Fortunately, when doing my last extracting the fall previous, I had reserved a goodly supply of heavy combs for this very emergency, the first time in many years, if it ever happened, that this precaution amounted to such an inestimable benefit to my occupation. Every side-comb of every hive was taken out and glanced over, and when found empty or insufficiently supplied was replaced by one or two combs of honey. In connection with this observation, I wish to emphasize the great convenience of the loose, hanging frame and its superiority in all its manipulations over any self-spacing device. A self-spaced frame would have greatly hampered this work and required much more time.

It is somewhat of a strange happening that I lost two colonies under exactly the same conditions. They had started quite a large brood-nest on one side of the hive, occupying five combs with patches of brood about the size of two hands in the center combs. The spaces between the combs were filled with dead bees, but not a drop of honey in the five combs. The three combs on the other side were practically free from dead bees and contained about ten pounds of honey scattered over the combs. When the March weather changed to zero temperature the poor bees tried to protect their offspring; they remained with their brood until all supplies within reach were exhausted and not being able to reach the stores on the other side of the hive they became a victim to that grim messenger, starvation. Thus bees starved with plenty of honey in the hive.

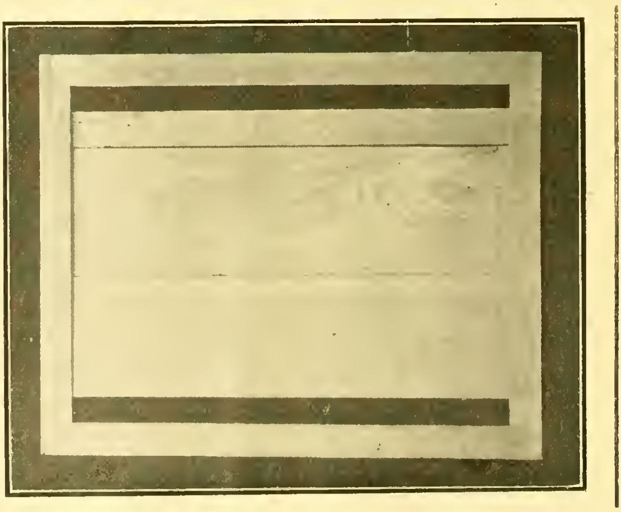
It may be too late to call the attention of beekeepers to the danger of starvation in spring, when these lines reach their eyes. Nevertheless, to caution those who have not yet ascertained the status of their bees may be the means of preventing sad disappointments.

La Salle, N. Y.

## Crane's Honey-Board

By J. E. Crane

SOMETIME about a year ago the editor of American Bee Journal gave a description of a honey-board I have been using for a number of years with a good deal of satisfaction. Since then I have received a number of questions as to how it works, with request that I answer in some one of our standard journals. Before doing so, however, it may be well to state the object of making it and using it, which was to get rid, so far as I could, of the travel-stain, so-called, on the sections. Now the word "travel-stain" is a misnomer. We get the impression at once from the word that the stain is caused by the bees traveling over the combs with dirty feet, which is not the case at all. There are two entirely distinct causes of stained combs. One is by bees entering their hives with their bodies covered more or less with pollen and passing up and down between the combs, rubbing it off. As it is somewhat glutinous, it sticks to the surface of the combs and discolors them. I have known the whole inside of a hive to change its color in a few days. It is apt to occur when bees are at work on dandelions or goldenrod or other flowers on which pollen is very abundant. This stain is usually easily removed by exposure to the sun light for a few days. Another and worse stain is caused by the bees carrying up from the brood-chamber soiled wax, propolis or cappings from the cells of hatching brood and mixing them with the new snow-white wax for capping the section honey. Sometimes they will gnaw cloths that have been laid over the sections over surplus combs, and thus produce a discoloration of cappings that cannot readily be gotten rid of, for the dirty wax cappings of brood, etc., form a part of the cappings and extend clear through them. In studying the subject many years ago I came to the conclusion that the moving of dark bits of wax, cappings, propolis etc., from the brood-chamber was the cause, for I observed that the combs in the center of the brood-chamber were much the darkest, while the outside combs were often quite white. The same was true of the sections in the super. Those on the outside were nearly or quite white, while those in the center of the super were, many of them, badly discolored. I also found by a glass of moderate power that bits of colored wax extended completely through the cappings. How could this be prevented? I tried Heddon's break-joint slatted honey-board, without much improvement. Then it occurred to me that if all communication between the center of the brood-chamber and the super was cut off the appearance of the sections would be greatly improved. I then constructed a honey-board of the same size as my brood-chamber, with a rim one-half-inch thick and one inch wide, with the center filled in of one-quarter-inch stuff so that when a clamp set on it there would be a quarter inch space between the bottom of my super and the upper side of the honey-board. I left a slot one-half inch wide on each side of the honey-board just inside the rim, so that when on the hive these would be at the sides of the top of the brood-chamber and over or outside of the outside brood-combs which were the whitest and had the least brood or soiled wax. I feared having so small a passageway from the brood-chamber to the super and so far from the brood would keep the bees from storing as freely without it. But I was happily disappointed in finding that it made little difference. Of course, I do not put these boards on until the bees have made a good beginning in the sections, nor is it necessary, for there is no danger of soiled cappings till they begin to cap them. Used in this way this honey-board does not appear to delay or interfere with the storing of honey in supers as a rule, but I have now and then found a hive that I thought would have finished its combs or sections more completely without the board under the super. Are the sections entirely free of stain? I am sorry to say that they are not, but are very much whiter than when the board is not used. The sections over the center of the brood-chamber instead of being the most stained are the least so. And the sections on the outside of the super do not appear to be much if any more stained than without the board. As a rule I think they finish the sections more evenly than without it, that is, they finish the combs on the outside of the super at the same time as the center sections, more nearly than without the board. We do not put the board on till some of the sections are about ready to seal, or the bees have already begun to seal them. When we tier up, by raising the first super and placing another under it, we delay putting on the board, as the first super is so far removed from the brood that there is little danger of the sections becoming stained. There is a great difference in different seasons and different localities in getting stained combs. As a rule the sections will be whitest where and when honey comes in fastest. We find little objection to the use of these honey-boards aside from the work of putting them on and taking them off. I have used them with eight-frame hives, and they might not work as well with a ten or twelve-frame hive,



CRANE'S HONEY BOARD FOR FINISHING OUTSIDE SECTIONS.

as the distance from the outside slots to the sections in the middle of the super might be so great that the bees might not finish perfectly and I would advise testing them on a few hives before trying to use them extensively. A honey-board thicker than the one I have described would doubtless work just as well, perhaps better, only it should be made so that part of it between the two slots should be one-fourth inch below the super, for a beespace, so the bees can readily enter the super.

Middlebury, Vt.

## My Neighbor's Garden

By Charles Duff Stuart

IT was but scant sympathy I received on the occasion of my first bee sting.

"Your thoughts were not right," my neighbor assured me. And as I bathed my swollen forehead and half-closed eyes, I was obliged to admit that they were not. Even then I had in mind the fly-swatter as a means of exterminating the entire Bee family.

"If you don't feel right toward them they know it," he continued; "You can't fool them. Fear is a poison that communicates itself through the atmosphere. That's what makes them sting."

The diagnosis seemed plausible, but it failed to abate the swelling, which steadily increased, much to the amusement of my neighbor, who attributed his own personal immunity to life's little discomforts to deep breathing and a proper mental attitude. But I would have traced the cause of his longevity still further, to the very source—long hours spent in the intensive cultivation of his garden.

It is truly a wonderful garden. My neighbor himself did not fully appreciate it until the visits of our bees revealed to him its beauty and variety. Each plant and blossom then took on a special meaning, and this awakened interest expanded to include the honey bees themselves..

"See? They don't bother me!" With bared head my neighbor stood beneath a Loquat tree, laden with blossoms on which our bees were working busily. It was an old tree of the Japan plum or Japonica variety, and pruned so that its branches were nearly on a level with his face. He stood with head thrown back, listening to the hum of the honey-gatherers and inhaling deep draughts of the clear morning air, while I found refuge behind the screen door of the kitchen and besought him not to tempt Providence too far.

PLUCKED FROM MY NEIGHBOR'S STRAWBERRY BED ON FEBRUARY 28.
(Photograph by John R. Douglass.)

"Get your thoughts right and they won't sting!"

"It's true!" corroborated his wife; "they know their friends instinctively, the darlings! How I'd love to squeeze them!"

It was not in me to destroy such perfect faith. I could only stammer, "Oh, d-don't squeeze them! You—you might hurt them, you know."

"She never hurt a living thing yet," declared my neighbor. And one might well believe it, judging from the care with which a few weeks later she carried cross lots a covered teacup. In it was a magnificent drone, captured and preserved by her, under the impression, no doubt gained from its size, that she was restoring to us a valuable queen bee.

After the Loquat, in December, came the Acacia bloom, in January and February, yielding white and yellow pollen, respectively, and much nectar. The bees throve. The hives waxed strong and full of stores. Already young bees were flying and eager to gather the nectar from my neighbor's strawberries. Simultaneously my neighbor's thoughts also turned to the strawberry patch which was situated just beyond and adjoining our apiary. My neighbor's garden at that point not only joins our bee-yard, but overlaps at the joint. And, notwithstanding the surveyor's stake and my tax receipts, it is that choice strip which for years had produced the berries for which he is famed.

My neighbor's thoughts were not in "error"—it was March and high time to put the bed in order—but his demonstrations were not in accord with the mental science of the bee. At the first stroke of the hoe they flew around him in mild wonder, tinged with an air of reproach. At the second, there was an alarmed, angry buzzing that should have forewarned him; but he only stopped and inhaled a deep breath. The following strokes brought the situation to a swift climax. The bees attacked en masse. There was no time in which to quell them with loving thoughts. He no longer yearned to pet the "intelligent little creatures." Safety first was the most urgent consideration. It was clear that he did not share the philosophy of the old Irishman who raked our yard, who, when a bee attempted to oust him from the premises, fought with one hand and worked with the other, even apologizing for the bee. "Och, he didn't mane inything at all. He was just busy, an' I was disturbin' av 'im."

Quite the contrary! My neighbor fled to the shelter of our porch. Gore was in his eye, and just above it waved the poisonous souvenir of his assailant. I gently removed the stinger, but could not assuage the sting. Indeed, no reparation short of the immediate extermination of the entire apiary by sulphuric fumes, to be administered by himself, personally, would satisfy.

"The book says," I ventured, when at last he paused for breath, "that a high board fence prevents bee stings." I then proceeded to expound at length the theory of a bee's flight—how it rises straight in the air above all impediments, before it strikes out to pasture, and how absolute safety depended only on the height of the fence. I watched the effect from the tail of my eye. He was growing visibly calmer. The prospect of a half-payment on a fence that would leave the strawberry patch on my side of it, had worked the magic. His wife, too, was deeply impressed. She presented me with a jar of strawberry preserves, casually remarking that fences, particularly high board fences, were out of date and no longer used in connection with modern homes.

A BRANCH OF ACACIA BLOOM
(Photograph by John R. Douglass).

Early next morning I was awakened by a sharp metallic sound.

"The milkman," I murmured, and turned over for another snooze.

Again the sound came—a stealthy, scraping sound. I stole to the window. In the half-light I perceived a dim form that now and then cast furtive glances in the direction of our hives. It was my neighbor. He was hoeing the unfinished rows of strawberries.

## Bees in Combless Packages

By the Editor

THE irregular results in crops harvested from packages of bees by the pound, received from the South, when they have arrived in good order and have been properly hived on empty combs, are mainly dependent upon the time at which they are received, when compared to the honey flow.

The results obtained in honey by the purchase of such small swarms as one pound or two pounds of bees, often do not come from these bees directly, but from the great increase in hive force secured from the queens themselves, by active egg laying.

Whether we rear bees at home for the honey crop, or whether we order them from far away, we must bear in mind that it takes 21 days to hatch a worker from the egg, and that it usually takes about 14 days more before that worker becomes an active field bee. So the actual amount of time necessary between the laying of the egg by the queen and the harvesting of honey by the bee produced from that egg, is 35 days. Let us suppose that our honey crop is usually due to begin on June 10. Then the first of our field force must be bred, the eggs must be laid, at least 35 days previously, or about May 6. If the egg-laying does not begin until May 20, the field force will begin its labors only about the end of June. If our crop lasts 6 weeks, nearly half of it will be gone before our bees can throw a sufficient force into the field.

This explains why countries in the far north usually succeed best with bees by the pound. Often their crop does not begin till the end of June. If they receive their combless packages by the middle of May and put them at once on drawn combs, the queens have at least 10 days in which to lay eggs that will make a working force for the first of the harvest. Queens that lay 3,000 eggs per day will thus furnish some 30,000 workers, more or less, at the opening of the crop, with additional thousands coming every day following.

In some parts of the country there are two distinct honey crops, the June crop and the August-September crop, or, as some call it, fall crop. If we secure our bees by the pound early in July, they will be ready for the harvest of the second crop after August 15. A package of bees by the pound secured in the middle of June would begin to hatch its first bees about the 6th of July, during the dearth between the two crops and would breed a large, useless force that would consume honey during the month of July without being of any use as field workers till six weeks later.

As bees live only about 45 days on the average, it is as necessary that we should not breed them too early as to rear them too late. As a matter of course, we need bees during the entire summer and a colony that would entirely stop breeding at any time would soon dwindle in numbers. But the beginning of the active egg-laying should come from 45 to 50 days before the opening of the prospective crop, so as to have the bees of 10 to 15 days of laying when the crop opens, with an increasing force after that, until the combs begin to be well filled with honey, when the laying perforce decreases for want of room for the queen to lay.

So it is of importance for the apiarist to be well acquainted with his locality and its bloom and also to keep informed on the earliness or lateness of the season, since seasons vary considerably.

LOQUAT BLOSSOM IN JANUARY
(Photograph by Alice Caldwell)

The queen breeder and bee shipper of the South must also have these matters in consideration, as he may help his customer by shipping at the right moment. But in order that both may have the greatest amount of satisfaction it is necessary that the purchaser should inform the shipper of his wants long enough ahead to enable him to prepare the supply. Nothing is more unreasonable than for a purchaser to make up his mind, at the last minute, to order 10 or 20 packages of bees and demand immediate shipment or money refunded. Although a breeder might happen to be in position to fill such an order, there is more probability of his having to return the money, as it is not always possible to keep bees and queens on hand subject to unexpected and immediate demands of far away customers. February is none too soon for the buyer of bees in pound packages to make his wants known and he should also remember that the breeder is just as dependent upon the weather as he is himself.

Experience has shown that queenless packages arrive in poorer condition than queenright ones. They could only be used to reinforce other colonies. The above explanation also shows why already built combs are of great importance in the success of bees in pound packages. It goes without saying that if there is no honey to be had in the field the bees must be fed to secure constant and copious laying.

## Mating of Queens

By Geo. F. Hayes

IN his first "Answer" of the November (1917) issue of the American Bee Journal, Dr. Miller states that he "thinks, in some cases, queens mate at swarming time." I had an opportunity last summer to observe that such is the case.

I shook from a low-hanging branch, a large swarm in front of a hive. After a few moments I noticed the queen crawling in the grass. I caught her and after concluding that she was a virgin, attempted to drop her directly in front of the entrance. She refused to drop, however, and flew into the air. After some confusion the bees settled again on the branch, from which I shook them a second time, and again succeeded in finding the queen. This time she bore the usual signs of being newly mated. I caught her to explain her appearance to a couple of neighbors who were watching. When I released her she took wing as before, but soon came back and alighted on the front of the hive.

The thought came to me that perhaps here might be a way to get queens mated in the home yard. This queen must have met the drone within a few feet of the hive, while she was circling preparatory to alighting again. The yard was close by and there were many drones flying from Italian colonies. The queen was purely mated and was laying in a couple of days. The difficulty is, of course, that virgin queens are not always in the mating humor when they swarm. May this not be because they are too young, and if they were manipulated so as to cause swarming when four or five days old would they always be in swarming humor? If so, it would be an easy matter to capture her while hiving the swarm and toss her into the air. She would circle around a few times before alighting, thus giving the drones an opportunity to seize her.

## Prices of Bees

ON page 262, August, 1917, an article appeared in the American Bee Journal concerning the pound package business. The article in question advised the dealer or breeder of bees and queens not to make any advance in prices for 1918. If buyers will but consider the matter fairly they will conclude that it is impossible for dealers to maintain last season's prices, especially those who sold bees at one dollar a pound and seventy cents for a queen. The material used in making one of these pound package cages costs about 31 cents, unprovisioned. We use the best XXXX pulverized sugar for feed; as a precaution we use an abundance of feed, never less than one-half pound when the shipment is to be made within our State, and when we ship out of Louisiana we always use one-pound of feed to each pound of bees. This item is 10 to 12 cents per pound. Now consider the work, which must be done by an expert. Then estimate the value of what honey one of these pound packages would bring to you if you should keep it at home. Shipping bees to northern and western buyers begins right at the time our best honey flow begins. The above will give the buyer an idea of whether a dealer would be justified in offering bees at even $2 for a one-pound package with queen.

A BREEDER.

## Glimpses of Southern Beekeeping

By Joseph S. Scott

LAST year the whole Gulf Coast was visited by a terrible wind and rain storm in July, and the amount of damage was great. The government had to open supply stations on the Alabama river to feed the laborers; most of them were tenants, and the overflow from the river wiped away their crops and there was no other work that they could do. Several beekeepers lost a lot of bees.

These were not lost by overflow, either; they were blown away. I did not lose any, but, as usual, I anticipated a flow from summer titi in July and boneset and goldenrod in September, so I had extracted all the honey that was on the hives and even some that was in the broodnest and sold it all. Several days after the storm came I had to begin to feed. I think that I fed everything that I could get that was sweet, but out of 225 hives I only pulled through the winter with 90, and they were living from hand to mouth (my hand to their mouth). However, there was a good early flow and they began to pick up, and they never stopped picking up, either. I have kept bees here for seven years and this is the first year that I ever saw them gather honey practically every day in the month from February up to the last of September. Titi was followed by blackberry, then tupelo, then black gum, then poplar, then cow peas, then summer titi, then velvet beans, then boneset.

The peas were from the heavy plantings for food, as they make a good dish for the table, come early, and need very little work. Velvet beans were more extensively planted this year than ever before. While I have gotten honey from both before, it was only just enough to know that we could get honey from these plants. Mr. Simmons, from Greenville, Ala., had a fine sample of velvet bean honey at the county fair at Mobile last year. The velvet beans were planted and introduced there several years before they were here. I examined a bloom this summer and found in one blossom enough nectar for three bees. I mean by that that it would take at least three bees to clean up that one bloom.

As for the cow pea, the bee does not get the nectar from the blossom at all, neither does it get it from where the leaves come out. A stem about the size and length of a lead pencil will grow from the vine and this stem will have several blossoms on it and when the blossoms drop off they will leave the little pea and after the pea gets about half grown then the bees will get the nectar. There will be at the end of the stem near the peas a very few little "eyes." They look like potato eyes, and the bees will suck the nectar from these eyes. They will visit a great many stems before they get a load, and I rather think that the fluid that they get is really not honey, but a sweet substance. I have never had enough peas to get this honey in its purity, but hope to have them next year.

Velvet bean honey is of a light amber color with a mild flavor, but not the body of basswood or clover or tupelo.

This is also the first year that I ever got a large surplus from boneset. We had a terrible rain and wind storm here the last of September and the bees were working furiously on boneset when it came. As the weather turned cold for a few days after, that cut off the rest of the surplus from that source. This boneset has sprung up on low places where the pine timber has been cut, and I think that in a few more years I will have a fine place for a surplus from that source alone. I got as it was an average of twenty pounds and think that if the storm had held off for a week longer I would have gotten a least fifty pounds average surplus.

My average this year from all sources has been 88½ pounds, spring count, and an increase from 90 to 220, against an average for the last seven years of 70 pounds. So there is one lining to that cloud, and when I tell you that I used to get 6 cents for extracted honey and 10 cents and pay freight for comb, and that this year I got 10 cents for extracted and 15 cents for comb, and the purchaser pay freight, there is another lining to the cloud.

Mt. Pleasant, Ala.

# LEGAL SERVICE DEPARTMENT

### Net Weight of Sections

"Must each section of honey be stamped with the net weight, in Iowa, to comply with the law, or can it be sold by the section or case?"

Answer. There has been much confusion regarding this matter in Iowa, owing to the fact that the Iowa State law is patterned after the federal law. While the federal law is so interpreted that all section honey which is produced in one State and sold in another must be stamped with the net weight, in Iowa the commissioner has not seen fit to enforce that regulation. The section of the pure food law which applies reads as follows:

"If any person shall sell, offer or expose for sale any food in package form, if the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure or numerical count; provided, however, that reasonable variations shall be permitted, and tolerances and also exemptions as to small packages shall be established by rules and regulations made by the State Food and Dairy Commissioner."

This State law reads almost word for word like the National law. The federal commissioners insist on the marking of all sections of comb honey, but the Iowa official, acting upon the authority vested in him to grant exemptions, has so far made an exception of comb honey. In a private letter he writes as follows:

"There is no exemption in the law to any product, yet this department has not been enforcing this law so far as it applies to section comb honey, because we understand that it is a little hard to weigh each section and put on the net weight. Unless we change our attitude, or the law is changed, we will probobly not require that section comb honey be marked as to its net weight."

W. B. BARNEY, Commissioner.

To add to the confusion, Iowa has a net weight law, which exempts comb honey from its provisions.

The best policy for the beekeeper to pursue is to weigh all sections and stamp them with the net weight in order that he may be in position to fill orders from outside of the State without violating the provisions of the National law, or to avoid possible conflict by a change in the regulations of the food and dairy department of which he might not have due notice. It is highly desirable that a uniform policy be generally followed, and since the National law requires that all comb honey going from one State to another be stamped as to the net weight of the sections, it is only a question of time until a similar requirement will be made in all the States.

# BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

### Honey Custard

A senior in "Home Economics" at the Oregon Agricultural College, is conducting some interesting experiments with honey, provided by the college apiary, according to an extension bulletin just received.

The following recipe, "Boiled Honey Custard," is recommended by her:

Two cups milk.
Three egg yolks.
One-third cup honey.
One-eighth teaspoon salt.

Mix the honey, eggs and salt; scald the milk and pour it over the eggs. Then cook in a double boiler until the mixture thickens. This custard is suitable for use in place of cream or gelatine desserts, or to be poured over sliced oranges or stewed fruit.

### A Neglected Industry

A Manitoba correspondent sends a newspaper clipping in which Lady McDougall directs attention to beekeeping as "a very ancient, but now neglected, British industry." If price is any inducement, surely there should be an inducement toward beekeeping, since "at present heather honey is selling at from 2s to 2s 9d per pound section." That's 50 to 68 cents per section! Our correspondent well says: "I am afraid the working man does not get much honey."

### What Our Farm Women Ask and Answer

In a department of a farm paper, under the above heading, occurs the following item:

"Miss I. E. B., New York, suggests that someone give cake and cookie receipts making use of honey."

It is encouraging to know that farm women are asking questions of that kind. It would be a good thing for beekeepers, and a still better thing for the general public, if farm women could know the whole truth about honey and sugar. If they did they would not only want to use honey for "cake and cookie receipts," but in staple articles of food and in drinks as well. It will bear repeating again and again that the more than 80 pounds of sugar used annually for every man, woman and child of the nation is a menace to health, because the sugar must be changed from cane to grape sugar by the digestive organs before it can be assimilated, and that throws too heavy a burden upon said organs, while on the other hand the bees are the little chemists that prepare honey for direct assimilation. It is to be feared that even the women in the homes of beekeepers do not sense this as fully as they should, and act upon it.

Few as the number of women may be who are fully aware of the real advantage honey has over sugar in the way of ready digestion—rather in the way of predigestion—still fewer are aware of the fact that honey contains elements that are absolutely lacking in sugar, mineral elements, to be sure in small quantity, yet of great importance in supplying what is needed for the full support of physical well being.

It might not be a bad thing if this sentence should be placarded on the walls of homes, indeed everywhere: "Honey is much easier of digestion than sugar, and contains important mineral elements that are entirely lacking in sugar."

### Making Bees Carry Up Honey

Your reply, advising to pound on the hives to make the bees carry up stores from below, seemed very practical to me, but in one little place, suppose we had pounded on or disturbed a colony, as you suggested, that had had a flight later than any of the rest and did not need it, would not the disturbance then do more harm than good? Our bees generally come out from 12 until 2 o'clock in the afternoon. If we waited until the rest had flown before pounding on the hive, when they would warm up it would be too late for them to fly, and the large amount of honey they had taken up would do more harm than good, for it might cause dysentery. So the only remedy I would see would be to first listen at the entrance and see if we could hear them roaring and then pound on the hive while the others were flying.

BIRDIE M. HARTLE,
Reynoldsville, Pa.

Your anxiety for the welfare of the bees is commendable, but in this case hardly well founded. Please note that you are advised to pound on the hives of those that are quiet **while others are flying,** and not after they have ceased flying. If it is warm enough for them to fly they will likely be flying within five minutes after you begin pounding, and as it is not at all likely to cool down instantaneously, they are practically sure of having abundance of time to fly if they should. Indeed, if you should delay pounding until flying had about ceased, any colony that had not flown would still find it warm enough to fly if any flight should be heeded.

You say "the large amount of honey they had taken up * * * might cause dysentery." So it might if they **consumed** the honey, but carrying honey up and emptying it in the cells is entirely different from consuming it, for in the former case there is no loading of the intestines, and in the latter there is. Loading the honey-sac with honey does not produce dysentery, but loading the intestines with what remains after digestion does.

It would do no harm to listen at the entrance, but it would hardly do any good, for if the bees should be stirred up to the point of roaring, they would quite surely be flying.

Beedom
Boiled Down

### Italians Resist I. O. W. Disease

I have had a good year, as trade has been good for both bees and honey. Isle of Wight disease is still with us, but the nearer pure Italians I keep, the less I lose with it. I have never lost a pure Italian stock.

HERBERT WATTS,
Holmleigh, England.

### No Failure in Ontario

I extracted over two tons of clover and basswood honey from thirty colonies of bees and sold it all at 15 cents per pound. I am a beginner with bees, but like them very much. Being a machinist, I have made my own extractor, five frames working direct, with no gears.

F. E. MOTT.
Honey Springs Apiary, Ontario.

### Feeding Sugar Affects Laying of Queens

I have made a comparative test of feeding sixteen colonies of bees. Eight colonies were fed sugar syrup and eight were fed honey. All queens were from the same hatch, so there should be no difference in that respect. I started feeding February 15 and continued until titi began to yield nectar on March 7. Eight colonies were stimulated by feeding a half pint of sugar syrup daily, the other eight colonies received an equal amount of honey daily.

The eight colonies fed on sugar syrup stored surplus as follows: No. 1, 82 pounds; No. 2, 73 pounds; No. 3, 91 pounds; No. 4, 79 pounds; No. 5, 87 pounds; No. 6, 108 pounds; No. 7, 86 pounds; No. 8, 71 pounds, in all 677 pounds.

The eight colonies fed on honey stored as follows: No. 1, 123 pounds; No. 2, 116 pounds; No. 3, 142 pounds; No. 4, 112 pounds; No. 5, 149 pounds; No. 6, 117 pounds; No. 7, 127 pounds; No. 8, 198 pounds, in all 1,084 pounds.

Of the eight colonies fed on sugar syrup, five swarmed, while there were only two swarms from the colonies fed on honey. There is soon a difference in the appearance of queens in colonies fed on sugar syrup; they become dark and slick, while those in colonies fed on honey remain bright yellow. I lay the difference in behavior of the colonies above mentioned to the difference in the feed.

LOUIA SHERMAN,
Little River, Ala.

### A Season of Failure

Last season was the nearest a failure with me that I have had in more than thirty years of beekeeping. When basswood began to yield the bees were on the point of starvation. The flow only lasted four or five days, but served to rally the bees and keep them in shape until heartsease. I only had two swarms and they had a hard pull to build up. The prospect for next season is good, as white clover came from seed and made a fine growth.

B. A. MANLY,
Milo, Iowa.

### A Poor Season

We had a poor season here and there will be a big loss of bees this winter for lack of proper care.

JOSIAH SWINEHART,
Wooster, Ohio.

### Starts With Stray Swarm

I am just starting in the bee business from a stray swarm which came to me in 1915. I now have eleven colonies, all packed with forest leaves. I expect to increase to 25 colonies this year. Hereafter my little truck and bee farm will go by the name of "Honey Hill," and I hope the bees will keep it true to name.

ELMER KOMMER,
Cambridge, Ill.

### A Price Booster

I am selling my honey to consumers for 25 cents a pound for extracted and 30 cents for fancy sections. When I find a fellow who cuts the price of honey I try to buy him out.

S. M. VARNIE,
Thompsonville, Ill.

### Gets Some Honey Anyway

The past season was a bad one for most beekeepers in this section, but I averaged 100 pounds surplus per hive; not so bad for my second year with bees.

HUGO E. BARTZ,
Keytesville, Mo.

### From Across the Sea

I am from the old country, raised in Alsace, about eight miles from the French border. I learned the German methods of beekeeping. My father was an old-time beekeeper who kept bees in straw hives (Strahkoerbe). For the last few years before I came over here I had a house apiary, but on account of poor season I came here in 1912 to study American bee culture. I have done well so far.

JOSEPH GARRE,
Janesville, Minn.

### Ridding the Apiary of Ants

Here, if unhindered, the ants multiply until unendurable. When they become so numerous as to be found all over the hives and combs they annoy the operator as well as the bees. If the pest is in the open, boiling water or disulphide of carbon may be used to destroy them by wholesale. Soapy water will discourage them somewhat. A thick syrup of sugar and water, containing to each pound of sugar one-twentieth ounce of sodium arsenite will get them in the apiary or honey room. If they do not take the uncooked syrup readily, beat it thoroughly, using care not to scorch it. Soak bits of cloth in the syrup and put it back out of the way in a tin can opened just far enough to permit the ants to enter.

LEE ELLIS KERR,
Fort Smith, Ark.

### Concrete Without Stones

Finding it desirable to convert a disused hen house into a honey house, a four-inch wall was needed to raise the house twelve inches to give head room. Cement and sand in plenty were available, but no stone or cinders. Tin cans, glassware and crockery of all sorts were substituted to good advantage. The contents of that wall will delight antiquarians in time to come.

D. QUEEN, New Jersey.

# MISCELLANEOUS NEWS ITEMS

**The National Meeting.**—As stated in our January issue, the National meeting is to be held at Burlington, Iowa, February 20, 21 and 22.

Owing to the mails being snowbound, I have not been able to complete the program for the National meeting. The following expect to be present or will send papers:

E. R. Root, "Present and Future of Beekeeping."

F. Eric Millen, "The State Agricultural College and Beekeeping, 1918."

Dr. E. F. Phillips, "Extension Work."

E. D. Townsend, "Some Proposed National Work for 1918."

C. P. Dadant, "Making Honey a Staple."

J. W. Stine, "Legislation; What Can Our Government Do to Help the Industry?"

Geo. W. Williams, "A Merger of All Beekeepers' Societies."

E. S. Miller, "The Future of the National."

John C. Bull, "Government Aid for Beekeeping."

There will be an evening session the 19th, three sessions the 20th and two sessions the 21st.( It was announced in the January journals that the convention would be held in Remy hall. Since that announcement it has been arranged to make the Burlington Hotel our headquarters and hold the convention in the banquet room of the hotel. All who expect to attend will please make reservation for rooms at the hotel ahead so that the hotel management will be able to take care of us. Anyone wishing programs may have them for the asking.

JOHN C. BULL,
Secretary-Treasurer.

### Obtaining Sugar

Today I had a conference with the Federal Food Administrator for Michigan, Mr. Prescott. After outlining the critical situation in which the beekeepers of this State find themselves as a result of the shortage of sugar, the food administrator assured me that he would make every effort possible, consistent with the duties of his position, to supply the beekeepers of Michigan with the sugar which they so badly need. In so far as possible, permits will be issued to wholesalers to supply beekeepers with sugar, upon my recommendation. I am, therefore, asking you to give this bit of information as wide publicity as possible, so that we may be able to serve the beekeepers of the State. Beekeepers should write me direct, and I will furnish them a regular form, which they must use in mailing application for sugar.

B. F. KINDIG,
State Inspector of Apiaries,
East Lansing, Mich.

### Extending Beekeeping Activities

In connection with the effort to increase food production, the Bureau of Entomology is enlarging its extension work in beekeeping by the appointment of several new men. Some of these men have been in the field for several weeks and others are just leaving Washington. During the winter months an effort will be made to reach beekeepers with the mesage that an immediate increase in honey production is needed, and during the active season field meetings will be held to assist beekeepers with practical production problems.

The following men have been appointed:

E. F. Atwater, of Meridian, Idaho, assigned to California, Arizona and New Mexico.

J. H. Wagner, of Wetmore, Colo., assigned to Washington, Oregon, Northern Idaho and Montana.

C. E. Bartholomew, transferred from Tennessee and assigned to Colorado, Utah, Southern Idaho and Wyoming.

E. W. Atkins, of Ames, Iowa, assigned to Iowa, Missouri, Kansas and Nebraska.

G. C. Matthews, of Hanson, Idaho, assigned to Illinois, Wisconsin and Minnesota.

P. W. Erbaugh, of East Lansing, Mich., assigned to Michigan and Indiana.

David Running, of Fulton, Mich., unassigned.

Mr. Kennith Hawkins will continue work in the Southern States and Mr. C. L. Sams will remain in North Carolina. The work in Tennessee has been discontinued.

The increased activity in extension work in beekeeping is made possible by the assignment of funds from the emergency appropriation to the Department of Agriculture for stimulating agriculture and the distribution of products.

**The "Little Bees" in Belgium.**—One of our staff having recently made a direct contribution for the relief of suffering Belgium, received, Jan. 4, the following letter from the assistant director of the Commission for Relief in Belgium:

Formal acknowledgment has already been mailed you for your generous contribution sent us under date of December 27, but we are sure you will be interested in knowing that same has been remitted to Brussels to the organization known as "The Little Bees" (Les Petites Abeilles). This society, which is taking care of practically all of the children—babies and older ones—in that city, who are in one way or another victims of the war, was organized some five years before the outbreak of the conflict. A group of young women banded together to help the children, and organized centers in Brussels for the distribution of needed clothing to children whose parents were unable to properly provide for them. Their efforts at once won the enthusiasm of the people. The Queen and the adored Princess Marie-Jose were their patronesses, and they became the most popular organization of their kind in Belgium.

When the war came the mothers quickly took charge. They established a vast home for refugees, where they housed over 5,000. Later they appealed to the relief committee to be allowed to develop their work to meet the terrible emergency, and their offer only too gladly accepted, one after another cantine for feeding, as well as clothing, was opened in the various sections of the city. At the present time there are more than 125 Brussels sections of the organization, caring for more than 50,000 children, and about 3,000 women are giving a great part of their time to the work.

The cantines served by these devoted women, with bees embroidered in the Belgian colors, on their white caps, are in every section of the city; in a vacant shop, a garage, a private home, a cellar, a convent—in any available, usable place—but every one immaculately clean.

The children of Belgium were, of course, the first to feel the effects of the stern repression of the food supply Such diseases as tuberculosis and rickets spread rapidly among them, and the work of "The Little Bees" in supplementing the ordinary ration allowed by the Commission became of vital importance to the future of the race They have labored unceasingly for three and a half long years, and are today beset with more obstacles than at any time since the war began. For over a year now, the lack of ocean tonnage has prevented the Commission from shipping hardly more than 60 per cent of the foodstuffs required to keep the population of Belgium in ordinary health, and the prices of what small supplies of native foodstuffs are available have soared beyond the reach of the common people. None of the funds advanced by the United States Government for the relief are available for the work of "The Little Bees," as the law requires that they be all expended in this country; and they and similar organizations have had to rely almost entirely on the charity of the outside world. The Commission is remitting what it can to "The Little Bees" and the other worthy charities weekly, and we believe sending your contribution to the first-named will accomplish the result for which it was intended.

A more detailed description of the work of "Les Petites Abeilles" and the various other works above referred to, will be found in the book, "Women of Belgium," by Mrs. Vernon Kellogg, of Stanford University, California, a copy of which we are sending you under separate cover with our compliments, and if you can do anything to give this book publicity in your Journal, we shall more than appreciate it, as we feel that its wide circulation will do much to further a spirit of practical sympathy for Belgium among the larger American public.

Very truly yours,
THE COMMISSION FOR RELIEF
IN BELGIUM,
PRENTISS N. GRAY,
Assistant Director.

**To Iowa Beekeepers.**—The Iowa State College is making special efforts to induce Iowa beekeepers to produce the maximum crop of honey the coming season. In order that a large number of beekeepers may be aided, a correspondence course in beekeeping has been prepared. The course includes ten lesson outlines, which will be sent out one by one, as needed, throughout the season. Besides the ten lessons, each student enrolling will be supplied with two reliable books on beekeeping management. Anyone having one or more colonies and wishing to keep bees with more pleasure and profit, is urged to enroll for this course.

A fee of three dollars will be charged to cover the cost of the books, and this will be the only expense, all correspondence being included.

The world has realized as never before that the final success of a nation depends upon its food supply. To increase the supply of most foods, extra labor, machinery, ground and seed are required. Beekeepers are very favorably situated, for in the majority of cases, a much greater crop of honey can be obtained with the supplies on hand. Preparedness and a little attention at the right time will turn the trick.

Give the bees a chance to do their bit the coming season, enroll for the correspondence course and harvest the nectar which nature provides.

Besides the correspondence course in beekeeping, there will be a one-week's beekeeping short course in May, notice of which will appear later. A large number of field meets will also be arranged for the working season and we hope to come in contact with a large number of Iowa beekeepers.

F. ERIC MILLEN,
State Apiarist.

**Idaho-Oregon Honey Producers' Association Meeting.**—At the annual stockholders' meeting of this Association, held recently at Ontario, Ore., the following members were elected directors:

C. E. Dibble, Payette District.
J. M. Stark, Middleton District.
J. F. Weaver, Ontario, District.
L. P. Peterson, Vale District.
H. E. Crowther, Parma District.
P. R. Randall, Nampa District.
Homer Cheney, New Plymouth District.

At a later meeting of the above Directors, the following officers were chosen:

President—C. E. Dibble.
Vice President—J. M. Stark.
Secretary-Treasurer—P. S. Farrell.

No attempt was made to present a program at our annual meeting, the entire session being given up to a resume of business of the past season and a discussion as to methods to make our organization of greater service to members.

P. S. FARRELL, Sec'y.

**Pennsylvania Meeting.**—The annual meeting of the Pennsylvania Beekeepers' Association will be held in Lancaster on Friday and Saturday, March 15 and 16. A good program is being prepared.

H. A. SURFACE,
President.

The beekeepers of Illinois may find difficulty in securing sugar for spring feeding. The State Inspector, A. L. Kildow, is taking steps through the State Board of Agriculture to supply this want. Definite instructions will be supplied in the March number.

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

### Semi-Monthly Market News Bulletin

Honey arrivals since last report:

**Medina, Ohio.**—150 pounds Tennessee 17,045 pounds New York, 33,900 pounds Ohio, 72,636 pounds Wisconsin.

**Hamilton, Ill.**—1,230 pounds Iowa.

### Markets—Jobbing Prices

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report represent the prices at which the "wholesale carlot receivers" sell to the "jobbers.")

**Note:** Arrivals include receipts during preceding two weeks. Prices represent current quotations.

**Kansas City.**—No fresh arrivals. Demand limited, movement slow, market firm; few sales, all sales in small lots. Comb honey: 24-section case, No. 1 Kansas, $4.50; Missouri, $5.00-5.50. Extracted honey: California, Iowa and Colorado, light amber, 16½-18½c per pound. Beeswax: receipts light, buyers paying 38c per pound.

**Minneapolis.**—No rail arrivals; local receipts very light, supplies light. Demand moderate, market very firm. Comb honey: 24-section cases, Minnesota white clover, mostly 19-20c per pound; Colorado white, mostly $5 per case. Extracted honey: Minnesota, white, 10-lb. pails and cans, mostly around 20c per pound. Beeswax, no sales.

**St. Paul.**—No rail arrivals; local receipts very light, supplies light. Demand slow, market firm. Comb honey, 24-section cases, Minnesota, fancy white, mostly $5 per case; No. 1, mostly $4.50; few Colorado, white, mostly $5. Extracted honey: Minnesota, 5 and 10-lb. pails, white, mostly 19-20c per pound.

**New York.**—Arrivals by boat: 13 barrels Texas, 2 barrels Haiti, 257 barrels South America, 30 barrels San Domingo, 161 barrels Porto Rico, 1 barrel Florida, 403 barrels Cuba; freight, 1 car Ohio. Domestic: no sales reported. West Indian supplies moderate, market strong, 15-17½c per pound. Beeswax: Boat arrivals: 33 cases South America, 2 bags, 2 packages San Domingo, 390 bags Cuba. Demand moderate, market steady. Yellow, 38-40c; dark, 35-37c per pound.

**St. Louis**—Supplies very light, insufficient to meet demand. All sales in small lots. Extracted honey: light amber, in cans, 15-15½c; in barrels, 15-16c per pound.

**Denver**—Less than 100 cases comb and approximately 15,000 pounds extracted arrived. Supplies cleaning up. Demand and movement good, market strong. Quality and condition good. Comb honey: 24-section cases, fancy white, $5; No. 1, $4.50; No. 2, $4.05. Extracted honey: white to light amber, 15-17c per pound. Beeswax: receipts light. Cash to producer, 38c per pound.

**Cincinnati.**—No fresh carlot arrivals; local receipts light. Demand moderate, movement slow, account of high prices; market firm. Extracted honey: domestic, light amber, 17-18c per pound; orange and white sage, 21c per pound. Comb honey: demand and movement good, market strong; 24-section cases, fancy white heavy, $5.25 per case; No. 1 white, heavy, $5 per case. Beeswax: demand good, market strong; average yellow, 40-42c per pound.

**Philadelphia**—Arrivals, extracted honey: 7 barrels Porto Rico, 10 barrels Haiti, 4 barrels Florida, 13 cases New York, 468 cases Idaho. Comb: 185 cases New York. Demand good, market strong; very few sales. Extracted honey: Porto Rico and Haiti, 17c per pound. Comb honey: dark amber, 20-24c per pound. Beeswax: 1 bag, 27 pounds, net, arrived. Very few sales, 35-37c per pound

**Chicago.**—Unreported.

**The Season in California.**—California cannot have a honey crop without rain. This year appears to be an unusual one for drought. Mr. Harry S. Merriam sends us the following clipping from the San Diego Sun, dated January 3. Mr. Merriam is the son of our old esteemed friend, the late Col. Merriam. His location is San Marcos, San Diego County, where he has kept bees for years:

"On this third day of January, 1918, we have to record the shattering of all precipation records since the first record was made in 1851, 67 years ago.

That is to say, the lightest rainfall ever known from July 1 to December 31, hitherto, was in 1876, when a total of .39 of an inch was recorded. This year, during the same period, we had just .25!

There has not been a December without a trace of rain in 67 years, and but two Decembers with only a trace. These were in '76 and '17. So we have shattered one record and tied another.

Now listen. The warmest fall, beginning with September, ever recorded by the local weather bureau, was the season just passed, ending with December 31, 1917, December having an excess of 88 degrees above normal. The next warmest fall season was that same fall of '76—that famous season when no rain fell, or practically none, from July to January.

Thus we have two points of similarity between these seasons 41 years apart.

The spring of '78 was the dryest ever known in the history of San Diego. The total rainfall for the season '77-'78 was 3.75 inches. The next dryest was the far-away season of '62-'63, when the record showed 3.87 for the entire 12 months. The normal rainfall for 67 years is 9.68 inches.

So, you see, the outlook for a dry season, based on past performances, is exceedingly good.

In that terrible year, '77-'78, there were no irrigation systems in the country, excepting the Mission dam at the old mission, and the cattle died like flies in the mountains, while the settlers had to dig wells in the bed of the San Diego river to get water for domestic purposes.

This season no such disaster will eventuate, for with Morena and smaller dams full of water throughout the county, there will be plenty of water for domestic purposes, even if no rain should fall at all, and by reasonable care the orchards can be kept in good shape, but the dry farmer will suffer the loss of his crop if rain does not come in reasonable quantity during January.

However, we can take some hope here, for in 67 years there has never been a dry January. December, 1900, when only a shade more than a trace fell, was followed by a wet January and February, with a total seasonal rainfall of 10.45, and big crops and plenty of prosperity for everybody.

In his "sixty-five years of rainfall records," Mr. Alciatore has compiled some very interesting figures. The heaviest rainfall ever recorded was the season of '84-'85, when 25.97 inches fell. With the exception of that abnormal season there has never been a season recording above 17 inches. There has never been a season with less than 3, and only two (those mentioned) with less than 4 inches, but five seasons in 65 have had less than 5 inches.

The drought this year has been unusual, in that it has extended to all parts of California, even to the mountains, where the snowfall has been phenomenally light, and all the way down the coast to the edge of the tropics."

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

It is inferred that all readers have access to the book "A Thousand Answers to Beekeeping Questions." This will avoid duplication in answering, as the book contains answers to practically all questions ordinarily asked on beekeeping. Subjects not specifically treated, or which are not clear to the reader will be further explained in this department at the request of any subscriber.

## What Hive Preferred—Shallow Super for Extracted Honey Production

1. For the production of extracted honey do you not think the Dadant or Jumbo hive would be preferable to the 10-frame dovetailed hive?

2. Which do you prefer, a shallow, or deep super for the production of extracted honey?

MICHIGAN.

ANSWERS. 1. Very likely, in most places.

2. The shallow; although there are advantages in combs that may be used interchangeably in either brood-chamber or extracting-super.

## Bee Paralysis

Would you kindly let me know Mr. Le Stourgeon's cure for the same disease described in your Journal of September, page 315 of bees dying, as I have three hives with the same complaint. Perhaps you have a better cure.

IRELAND.

ANSWER.—The LeStourgeon cure for paralysis is just what is given at the place you quote: "Feed them some fresh, pure food." That's all there is of the cure, and Mr. LeStourgeon claims that the disease is caused by soured stores, and all that is needed to cure it is to give pure food. There is, however, the possibility that yau have something different from paralysis.

## Bottom Racks—Nucleus Division

1. In describing that bottom-rack as being in the form of a ladder, what is the width and thickness of the rungs and how much space between them and the bottoms of the frames, and do the parallel pieces run lengthwise of the hive?

2. I want to double my number of colonies next season by the nucleus plan, page 137 of "Thousand Answers." I produce extracted honey. When would be the best time to make increase, at swarming time or extracting time? I have a fair fall flow.

MISSOURI

ANSWERS. 1. In most of them the rungs are three-eighths by three-sixteenths. It might be even better if they were thicker, say three-eighths square. Space between bottom-bars and back about three-fourths inch The parallel pieces run lengthwise of the hive.

2. It may be as well to wait 'till extracting time, seeing there is a good fall flow; yet you would be saved swarming trouble by dividing at swarming time.

## Queen Excluders

What kind of a queen-excluder is the best to use, and how used?

Do you put them between hive body and bottom board to prevent swarming?

INDIANA.

ANSWER.—I think from the little experience I have had with them wire excluders are best. One of the commonest ways in which they are used is to put them between the brood-chamber and extracting-super to keep the queen from laying in the extracting-combs.

From the last part of your question I suspect you have some idea that by putting an excluder between the hive-body and the bottom-board, so that the queen cannot get out, you will prevent swarming. Don't be fooled into trying anything of the kind. While this might prevent the queen from leaving with a swarm, it would not prevent the bees from swarming and returning day after day, and would finally result in having a drone-laying young queen.

## Shaking Bees From Combs

To be sure and not take the queen, does it hurt the brood to shake the bees, or is it better to brush them off the combs?

MISSOURI

ANSWER.—Shaking does no harm to the brood unless queen-cells are present, and then only queen-cells are hurt.

## Combs in the Cold—Increasing

1. In looking over my combs in the extracting house I notice they are badly cracked. Is it the cold weather that causes this, there being no heat in the building?

2. I have some forty combs of sealed honey for spring feeding in Langstroth frames, with four wires in each frame, in the same building; will they be hurt?

3. I want to increase, which will be the better way, buy bees in pound packages, or buy sugar and feed my present stock in spring and divide, as we have no flow until the last of June?

4. I know a beekeeper who is trying a 15-frame Langstroth. What do you think of such a large hive in this locality?

ONTARIO.

ANSWERS.—1. Yes, it is the freezing. The bees will mend them all right.

2. There will be some cracking of the combs, and a worse thing is that the honey in them will granulate and some of it will be wasted when given to the bees. Can't you keep them in a warm room or in a cellar?

3. You can at least get on faster by buying package bees.

1. It may be a good thing.

## Demaree Plan

1. From what I can glean from "Thousand Answers" and "Fifty Years Among Bees" I infer that when using the Demaree plan, one should not allow a large amount of brood to accumulate below the excluder. What would be a good rule to go by to know when this brood should be moved into the second story

and foundation or empty combs given instead?

2. When using the Demaree plan, if a swarm issues I have thought of managing about like this: Cage the clipped queen and destroy all queen-cells and when the swarm returns to the parent hive give the queen and all eggs and young brood into the care of another colony for about five days, or until the swarming colony realizes that they are absolutely queenless. Then return the queen and one frame of brood below the excluder and balance of brood above. Is there a better way?

ANSWERS.—1. Your idea is a mistaken one. At the time the Demaree plan is used the brood-chamber is crammed with brood, and it would hardly be wise to operate until the brood-chamber is in that condition. The time to move this brood into the second story, over the excluder, is any time when swarming in general is likely to occur; or, to be more specific, when the colony is very strong and has started queen-cells. However, if the matter should be neglected until the colony has swarmed, the swarm may be returned and the colony treated on the Demaree plan, just as if no swarming had taken place.

2. Yes; I think it is easier, and on the whole a better way, to leave the queen and use the regular plan.

### Feeding Sections

I have five hives that are reasonably strong and have a fairly good amount of honey in the frames, but I am not sure whether they have enough. I have about 75 sections that are drawn out very well and have all the way from one ounce to half a pound of honey in them. I have no extractor. My question is, would it be all right to feed it to the bees this winter? If not, when would be the best time to feed it? Just how would you feed tt?

KANSAS.

ANSWER.—You can use such sections as feed. If you think a colony is in danger of starving before spring, put over it an empty super, lay sections flatwise upon the top-bars, and then pack over them cloths to keep them warm. If you think there is no danger of the bees starving before spring, wait until the bees are flying every day or so, then put sections in supers the regular way and set the supers on the hives, of course giving them to colonies most in need.

Over a Quarter of Century of Select Breeding MAKES THEM Thrifty, Hardy, Gentle and Beautiful

FOREHAND'S THREE BANDS

THE THRIFTY KIND

We have placed these queens on the market for over a quarter of a century, and every year the demand increases.

Doesn't this prove that they are good queens?

This year we are better fitted than ever before to fill the demands of our customers.

Deposit your order now and insure prompt delivery.

We guarantee pure mating, safe arrival, and satisfaction.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Write for Circular.

**W. J. FOREHAND & SONS, Ft. Deposit, Ala.**

Queens That Will Please

Over 20 Years of Careful Selecting and Breeding

They are bred from **Imported** stock, the very best for honey gathering and gentleness. They are not given to swarming and are highly resistant to diseases. Give me your order, and after you have given my queens a fair trial, if you are not satisfied in every way that they are as good as any you have ever used, just return them and I will send you queens to take their place or return your money with any postage you have paid out on returning the queens.

**Prices April 1 to June 15**

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Selected untested | 1.15 | 6.00 | 10.00 |
| Tested | 1.50 | 8.00 | 17.00 |
| Selected tested | 2.00 | 11.00 | 20.00 |

**Guarantee.**—You take no risk in buying my queens, for I guarantee every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction.

L. L. FOREHAND, Ft. Deposit, Ala.

Bigger Fruit Profits

The fruit grower of today is reaping his greatest profits by keeping in close touch with the progress of the industry and developments.

Green's American Fruit Grower

"The National Fruit Journal of America"

through its many articles on growing, marketing and related subjects, points the way to bigger fruit profits. A sample copy will be sent you on request; better still, take advantage of our rate of

**3 Years for $1.00**

which brings you 36 copies of Green's American Fruit Grower—filled from cover to cover with money-making suggestions.

GREEN'S AMERICAN FRUIT GROWER

Chicago, Illinois

Paint Without Oil

Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone Who Writes

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

BEE SUPPLIES

Let Us Figure With You

We know we can satisfy you on price and quality. Write for catalog.

C. C. Clemons Bee Supply Co.
Dept. S., Kansas City, Missouri

WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey-Producers' Association
1424 Market Street, Denver, Colo.

**I Am Ready to Book Orders Now**
for spring deliver for Italian bees in pound packages at $1.40 per pound. Tested queens, $1.25. Untested, 90c, 6 for $5.00. Safe arrival guaranteed. Free from disease.
C. H. COBB, Belleville, Ark.

## QUEENS ═══ BEES ═══ QUEENS

**Three Banded and Golden Italians; the best *of* either**

They are hustlers; gentle to handle; cap their honey white; are very resistant to European foulbrood. We have added Mr. B. M. Carraway's queen-rearing outfit to ours and have with us one of his assistants, so can fill all orders promptly. Had fine success shipping bees last season in our newly devised cage and method of feeding, a number of shipments going as far as Idaho and Wyoming. Mr. R. B. Mills, Corinth, N. Y., wrote, "Bees arrived in fine shape, not 50 dead bees to the cage, 2-lb. size." Satisfaction and safe delivery guaranteed. Get your order in early. Reference: The Guaranty State Bank, Robstown, Texas, or the City National Bank, Corpus Christi, Texas.

| | 1 | 6 | 12 | 50 | 100 | |
|---|---|---|---|---|---|---|
| Untested Queens | $1.15 | $ 6.35 | $11.50 | $43.70 | $ 85.00 | Add price of |
| Select Tested | 2.50 | 11.50 | 20.70 | 74.75 | 138.00 | Queens wanted |
| Bees, one-pound package | 1.75 | 9.80 | 18.40 | 74.75 | 138.00 | to packages. |
| Bees, two-pound package | 2.90 | 17.25 | 33.95 | 132.25 | 240.00 | |

CIRCULAR FREE.

**NUECES COUNTY APIARIES, Calallen, Texas**

## THE KAISER PLANNED WAR YEARS IN ADVANCE

Why not plan your 1918 honey production in advance? And let your plans include an immediate order for Kretchmer goods. If you produce more honey you must have everything ready when needed by the bees.

There is no time to lose; freight is moving slow and conditions may become worse.

Write for the new GREEN CATALOG and help whip the Kaiser.

**KRETCHMER MFG. CO.**

301 Eleventh Ave. Council Bluffs, Iowa.

## BEEKEEPERS

KEEP IN TOUCH WITH

## Leutzinger & Lane

236-238 Drumm St.
SAN FRANCISCO, CALIF.

Buyers of EXTRACTED and COMB HONEY

Shippers and Exporters of HONEY

[ The WORLD is Our Market ]

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**YOUR PERPLEXING QUESTION**

will undoubtedly be answered in the new bee book, "Dr. Miller's Thousand Answers." For beginner and veteran alike. Not intended to replace other bee books, but to supplement them. Price, postpaid, $1.25, or with the American Bee Journal one year, both $1.75.

**American Bee Journal, Hamilton, Ill.**

## *Hundreds of Thousands*

*of* **WEBSTER'S NEW INTERNATIONAL**

**DICTIONARIES** are in use by business men, engineers, bankers, judges, architects, physicians, farmers, teachers, librarians, clergymen, ***by successful men and women the world over.***

**ARE YOU EQUIPPED TO WIN?** The New International is an all-knowing teacher, a universal question answerer.

400,000 Vocabulary Terms. 2700 Pages. 6000 Illustrations. Colored Plates. 30,000 Geographical Subjects. 12,000 Biographical Entries.

**Regular and India-Paper Editions.**

Write for Specimen Pages, Illustrations, etc. Free, a set of Pocket Maps if you name this paper.

**G. & C. MERRIAM CO.,**
Springfield, Mass.

PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

## HONEY JARS

We carry several styles of honey jars, the most popular being the 1-lb. screw cap at $6.50 a gross. If you need shipping cases, we have them. Catalog of supplies mailed upon application.

We have a fair stock of light amber and amber honey. Write for prices.

**I. J. STRINGHAM**
**105 Park Place, New York**
**Home Apiary, Glenn Cove, L. I.**

# Classified Department

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

## BEES AND QUEENS

FOR SALE—First-class Italian queens and bees in season. Send for price list. Free from disease; safe arrival and satisfaction guaranteed. M. Bates, Greenville, Ala., R. 4.

BREEDING QUEENS—I have a few extra choice Italian breeders for spring delivery. Price $5 each.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

FOR SALE—75 colonies bees in a fine location. J. L. Leath, Corinth, Miss.

FOR SALE—Bees. Pound pkgs. and nuclei, with queens.
Mrs. T. H. Carruth, Big Bend, La.

FOR SALE—Nuclei, with or without queens; pound and two-pound package bees with queens; best Italian stock.
Lewis J. Bond, Big Bend, La.

OUR BRIGHT ITALIAN QUEENS will be ready to ship after April 15. Untested, 75c each, $8 per doz., or $65 per 100. Safe arrival guaranteed.
Tillery Bros., Georgiana, Ala., Route 5.

FOR SALE—Fine Italian queens at 90c each, $9 per doz. Ready April 15. Safe arrival guaranteed.
T. J. Talley, Route 3, Greenville, Ala.

THREE-BAND ITALIANS ONLY—Queens, packages and nuclei. Untested queens, each $1, 6 $4.25, 12 $8.25. Write for prices in larger lots, also nucleus and packages; booking orders now. If you consider quality, pure mating and low prices I am your queen-breeder. I have adopted Gleanings Code for the sale of bees and queens. H. G. Dunn,
The Willow, San Jose, Calif.

GOLDENS THAT ARE TRUE TO NAME—Queens, nuclei and bees by the pound; we receive hundreds of testimonials annually. Write for list. Untested queens, each $1. 6 $4.25, 12 $8.25. Write for prices in lots. We are now booking orders for early delivery. We have adopted Gleanings code for the sale of bees and queens.
Garden City Apiaries, San Jose, Calif.

FOR SALE—Bees. April 15 is the date on which we can ship you the best three-banded bees and queens on the market; we have been in the bee business continually for twenty-four years and have been striving to secure the best three-banded bees which money could buy and skill produce, all these years. Judging from the many letters we have received from satisfied customers, we have succeeded in our efforts. We believe we can furnish you with the best honey-gatherers to be found anywhere. You will find our nuclei better filled with bees and brood than any other nuclei you can buy. All our bees are on standard, wired, Hoffman frames; full sheets of foundation. File your orders now, sending money when you want the bees shipped. Satisfaction and safe arrival guaranteed. We quote you, without queen, as follows: Three-frame nuclei, $2.50; two-frame nuclei $2.00; one-frame nuclei, $1.50; three pounds bees, $3.50; two pounds bees, $2.50; one pound bees, $1.75. If queen is wanted with bees, add price of queen wanted. Young untested queens, 75c; young tested queens, $1.
The Hyde Bee Company,
Floresville, Texas.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

VIGOROUS, prolific Italian Queens, $1.00; 6, $5.00, June 1st. My circular gives best methods of introduction. A. V. Small,
2308 Agency Road, St. Joseph, Mo.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

THREE-Banded and Golden Italian Queens and pound packages in spring, from the Sunny Southland. Grant Anderson,
Rio Hondo, Texas.

FOR SALE—1 to 100 strong 8-frame colonies extra fine strain Italian bees, $5 each; all free from disease, with stores for winter; Standard full-depth, self-spacing Hoffman frames; all straight combs in new one-story single-wall hives, f. o. b. here.
Wilmer Clarke, Earlville, Madison Co. N. Y.

PURE 3-banded Italian queens, untested but warranted, $1; 6, $5; tested, $1.50; 6, $8. Last year's tested queens, clipped, $1. Good fat nuclei and full colonies in abundance. Write for price list. J. F. Diemer,
Liberty, Mo.

THREE-BANDED Italian queens from our hardy, vigorous strain of honey producers; untested, one, $1; doz., $9; nuclei and pound packages June 1. Satisfaction guaranteed.
A. E. Crandall & Son, Berlin, Conn.

NOW is the proper time (not tomorrow) to place your order for bees and queens. A postal brings you the story of a pound package of bees.
Rosedale Apiaries, J. B. Marshall & Son,
Big Bend, La.

BEES WANTED—From one to 100 colonies within 200 miles; also used equipment.
John E Geiger, Syracuse, Kans.

BEES AND QUEENS—What a pleasure when you know and I know and the bees know that you have placed your order to be shipped to you in April and May; no war prices. Write
S. Mason, Hatch, N. M.

THREE-BANDED Italians; untested queens in April and May, one, $1; 6, $5; 12, $9. Tested, $1.50 each One-pound packages of bees, $1.50 each; two-pound packages, $2.50 each. Add price of queens if wanted. If you want as many as 50 packages write for prices and discounts on early orders. Safe arrival and satisfaction guaranteed. No disease, and all queens purely mated.
Cotton Belt Apiaries, Box 83, Roxton, Texas.

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolians. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo, Leon So., Tex.

## HONEY AND BEESWAX

FOR SALE—White clover extracted honey, 60-pound cans and 10-pound pails. Write,
Wes. L. Roberts, La Valle, Wis.

WANTED—Beeswax; we pay higher than market price for good grades light and light yellow wax; get our prices before disposing of your wax. Queen Mfg. Company,
Falconer, N. Y.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa. Monroe, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered.
The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

BE sure and include the Domestic Beekeeper with your list of bee journals for 1918. The Domestic Beekeeper will help you to dispose of your crop of honey without expense to you; also, buy your beekeeper supplies for you at cost. If you knew all we were doing for our subscribers, you would certainly be with us during 1918 as a subscriber. Can we have the pleasure of entering your name on our subscription list? Address The Domestic Beekeeper, Northstar, Michigan.

FOR SALE—Number 1 comb honey at $4.80 per case of 24 sections.
Ray Dunham, Westboro. Mo.

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

WANTER—Beeswax at all times in any quantity, for cash or in exchange for supplies.
Dadant & Sons. Hamilton. Ill.

## SUPPLIES

FOR SALE—One thousand beehives with supers; three-fourth dovetailed, balance halved together at corners and nailed both ways. Hoffman frames throughout. We will guarantee them to be sound and free from disease. Will sell all or any part at about half what new hives will cost. Apply to The Hyde Bee Co.,
Floresville, Texas.

200 VEGETABLE PLANTS, $1, including tomatoes, peppers, egg plants, lettuce, celery, cabbage; 100 flowering plants $1; choice assortment R. I. Red eggs; day-old chicks, bees, queens, honey. Grubb,
Box B 14, Woodmont, Montg. Co., Pa.

SIBERIAN FUR FARM, Hamilton, Canada, breeds foxes, marten, mink, ermine, skunks and black Siberian hares. Information and price list free. Write address plainly.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

YOU have likely been thinking for some time that you would like to have The Domestic Beekeeper come to you regularly each month, but have been putting it off for some reason or other We would like very much to have you all start in with us this next year. We are very sure you will not regret it if you make this start. To some of the early December subscribers for 1918, we will send, free, the last three numbers of 1917. If you expect to get in on this back number proposition you will need to be prompt in ordering, as those back numbers are going fast and there will be none when the present supply is exhausted. Address, with remittance, The Domestic Beekeeper, Northstar, Michigan.

FOR SALE—500 Extracting Supers, nailed a 1 painted, with frames; will sell cheap.
A. F Stauffer. Delta. Colo.

## HONEY LABELS

HONEY LABELS—We have just issued a new and up-to-date catalog of honey labels and stationery. Write for your copy. Neat labels and quick delivery guaranteed.
American Bee Journal. Hamilton. Ill.

PRINTING at lowest prices; 100 envelopes, 6¾, for 40c; also cards, tags, letterheads, noteheads, etc.
Alfred Bentz, Granton, Wis.

SOUVENIR Bee Postal Cards, 5 for 10c; "Songs of Beedom" (10 songs), 20c, all postpaid. George York, Sandooint, Idaho.

## WANTED

WANTED—50 to 200 colonies of bees, preferably near home.
H. G. Quirin, Bellevue, Ohio.

WANTED—25 to 100 Italian colonies of bees in movable-frame hives; must be strong, healthy and free from disease. Send full description and price.
Louis Waeltz, Marissa, Ill.

WANTED—To buy bees in the southwest or work apiary on shares. Give particulars.
Box 1291, Tucson, Ariz.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—One copy January 31, 1895, American Bee Journal; one copy January, 1912, Beekeepers' Review. C. D. Stuart.
440 Phelan Bldg., San Francisco, Calif.

WANTED—One extractor; must be in good condition. State kind and price; also 5 or 6 beehives, 10-frame, with frames.
Geo. Varnum, Miller, Ohio.

WANTED—Barnes foot-power circular saw, second-hand. Give description and price in first letter.
D. C. Noble, Columbia City, Ind.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

$1.50 pays for a year's subscription each to The Domestic Beekeeper and the American Bee Journal. You can order them from either office, as you prefer.

IT will be the same to us whether you remit for The Domestic Beekeeper direct to Northstar, Michigan, or whether you send it in with your subscription to the American Bee Journal; only, be sure and include it, as we want every American Bee Journal subscriber to become a Domestic Beekeeper subscriber.

WANTED—One to 100 strong colonies of Italian bees in 10-frame, dovetailed hives.
Bernard Benziger,
Beekman Terrace, Summit, N. J.

WANTED—We are looking for old bee-books, back numbers of the Bee Journals, issued prior to 1907, etc., for some of our subscribers who wish to complete libraries of beekeeping literature. Just now we want especially copies of Alley's Beekeepers' Handy Book, the second volume of Cheshire on Beekeeping, and copies of Harbison's and Wildman's books. Readers having old beebooks or bee journals which they no longer care for will please write us fully what they have to offer, with prices asked.
American Bee Journal, Hamilton, Ill.

### SITUATIONS

WANTED—A man to work with bees for the season of 1918; one who has had some experience. Alex. Adams, R. 2, Greeley, Colo.

WANTED—One or more men of some experience in the handling of bees. Prefer them to be under or past military age and morally of good habits. A good chance for the right party or parties to earn fair wages and learn queen-breeding, the package business and honey production.
M. C. Berry & Co., Haynesville, Ala.

WANTED—Young man for season of 1918, as helper, and learn bee business; experience not required. Board and good wages to right man. A. J. McCarty.
712 Coffman St., Longmont, Colo.

WANTED—Middle-aged man with some experience to work in bees season of 1918. State age, wages and experience in first letter.
Frank Alexander, Delanson, N. Y.

WANTED—Someone to work my bees on shares or rent them. Have good location and experience. Write for particulars.
J. H. Waibel, Kawkawlin. Mich.

WANTED—Can take two students for season of 1918; board given in exchange for work, and more if season is good.
Running Sea Apiaries.
R. F. Holtermann, Brantford, Ontario, Can.

WANTED—Two single men, strong and healthy, not subject to first draft; must be thoroughly familiar with bees and understand runing same for packages and honey; services required to Oct. 1. We furnish board and lodging. State lowest wages first letter.
The Penn Co., Penn, Miss.

WANTED—Position by young man, age 24, height 5 feet 9 inches; weight 165 lbs., as student helper in large apiaries. Have had some experience with bees. Please state wages in first letter, with board and lodging included.
Henry Eggers, Eau Claire, Wis., R. F. D. 1.

WANTED—Two beemen for comb honey for 1918. State age, wages and experience.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

WANTED—Practical beekeeper with small capital, to take interest in 500 colonies of bees, and work them. Give references.
G. D. Mitchell.
1421 Josephine St., Berkeley, Calif.

WANTED—Expert comb-honey man, with references, to handle 700 stands of bees. Good proposition to right man.
Hagerman Valley Bee and Honey Co.,
Hagerman, Idaho

### FOR SALE

FOR RENT—My home of 2½ acres, 1½ miles south of Bureau, Ill., on the I. V. W. road; 6-room dwelling, work shop and storeroom; barn, corncribs, chicken house and outdoor cement cellar; good well and cistern; plum orchard, grapes, apple, cherry, peach and pear trees; two good garden plots. Fine chicken farm and one of the best bee locations in Illinois, and home of the late R. A. Elliston, who was a large honey producer. For information address Mrs. R. A. Elliston, 357 Grand Ave., Aurora, Ill.

FOR SALE—Wishing to retire from active business, I offer for sale 300 colonies bees in 8 and 10-frame L. hives; 750 full depth extracting supers, with combs; 400 section honey supers; 300 honey boards; 75 escape boards; eight-frame power extractor, with honey pump; four H. P. gasoline engine; saw with dado, planer heads and attachments for making supplies; a complete apiary in No. 1 condition; good location. 1917 crop was 14 tons honey. Will also sell my home place of ten acres, 5-room house and No. 1 improvements, near to a $5,000 schoolhouse. Will sell home separately and give terms. J. R. Marlow,
R. D. No. 1, Weiser, Idaho.

# Crop Report and Market Conditions

At this season of the year there is so little that can be reported upon that we have not sent out inquiries to reporters as usual. With the opening of spring the market page will again be taken up in earnest, as it will then be possible to give our readers an idea of how the bees have gone through the winter and of what the flora prospects are for the coming year.

### HONEY

Honey is so nearly cleaned up that what little is left in the hands of the producers may be considered as a negative quantity. Such as is held in the hands of dealers is mostly for the supply of the bottle trade, and most bottlers find that they will not have sufficient to carry them till the new crop. Some are buying Cuban honey already, to mix with what they have left.

White extracted honey should command not far from 20 cents per pound put up in five-gallon cans. Comb honey is even more scarce than extracted.

### CHANGING TO EXTRACTED

All supply houses note a remarkable change in sales over previous years. The demand for deep and shallow supers and for shallow frames to be used to change comb-honey supers into extracting is large.

Many beekeepers also are increasing their holdings, or expect to, some even doubling the number of colonies which they had in 1917.

### THE WINTER, SO FAR

The winter's cold has been unusually prolonged over the north and outdoor wintered bees that were not carefully packed against the cold and winds are apt to suffer great losses. A warm spell now would be a boon to the outside wintered bees. Those in the cellar seem to be wintering about on an average.

### WATCH FOR STARVATION

Beekeepers will do well to watch for colonies short of stores just as soon as the first warm days of spring. Many colonies went into winter without an abundance of stores and are likely to run short early.

THE CANADIAN HORTICULTURIST AND BEEKEEPER

THE ONLY BEE PUBLICATION IN CANADA

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.

Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive and practical monthly magazine.

Well illustrated and up-to-date. Subscription price postpaid.

Canada, $1.00 a year. United States, $1.25 a year. Foreign, $1.50 a year.

Sample copy sent free on request.

The Horticultural Publishing Co., Limited, Peterboro, Ont., Can.

CONDON'S NEW EVERBEARING TOMATO

"Queen of the Market" Big Money Maker. Large solid fruit; excellent canner. To introduce to you our Northern Grown "Sure Crop" Live Seeds we will mail you (125) seeds of Condon's New Everbearing Tomato and our Mammoth 1918 Garden and Farm Guide FREE Tells how, when and what to plant for pleasure and profit. Send postal today.

CONDON BROS., SEEDSMEN
Rock River Valley Seed Farm
BOX 993 ROCKFORD, ILLINOIS

200 VEGETABLE PLANTS $1
assorted,
including Tomatoes, Peppers, Egg Plants,
Lettuce, Celery, Cabbage.
100 FLOWERING PLANTS $1
Choice assortment from thirty varieties.
R. I. RED EGGS. DAY-OLD CHICKS
BEES QUEENS HONEY
GRUBB,
Box B 14, Woodmont, Montg. Co., Pa.

**Have you received our new catalogue?**

**We offer you even better service than ever before at our new location**

**COME IN AND SEE US**

**Write for our 1918 Bee Catalogue now**

# Suggestions for the Wide-Awake Beekeeper of Today

If you hired a carpenter to repair your barn and he arrived without his tools, he could not give results, even if he were the best carpenter in the country.

It goes without saying that you, a beekeeper, must look to the future or the honey season will be on and your needed supplies will be tied up in some freight car—EMBARGOED.

Order from us *now,* allowing for slow freight delivery, and your supply will reach you in plenty of time.

## OLD COMB

Ship your old comb and cappings to us for rendering. We charge you 5c per lb. for the wax rendered and pay you the highest market price.

## WAX AND HONEY

We always buy Comb and Extracted Honey, as well as Beeswax, so when you have the above to offer, write us and you will be well pleased.

## Four Reasons for Our Success

**Honesty**

**Quality**

## LEWIS'S BEEWARE

If you have used LEWIS'S BEEWARE you know the quality; if not, this is just the time to invest your money where the results are lasting.

*"Made Like Furniture."*

**Price**

**Service**

**DADANT'S famous Foundation**

**THE FRED W. MUTH CO.**

214 Walnut St.
CINCINNATI, OHIO

**"QUALITY COUNTS WITH US"**

**ROOT'S Smokers and Extractors**

## Are Now Booking Orders for 1918 Spring Delivery

Twenty-two years of Select Breeding gives us Bees of Highest Quality and Vitality.
Largest Package Shippers and Queen Breeders in the South.

**1500 Colonies of Bees and 1500 Nuclei**

10,000 Pounds of Bees ═ Annual Capacity ═ Italian Queens, 15,000

SAFE ARRIVAL AND SATISFACTION WE GUARANTEE

Our Circular and Price List for 1918 is Now Ready to Mail.

**M. C. BERRY & CO., Hayneville, Alabama, U. S. A.**

---

## NOTICE!

## Beekeepers' Supplies

We are now located in our new plant, equipped with the latest machinery for making Supplies. Write for catalogue, which will be ready for mailing in January.

We can save you money, no matter how large or how small your order is. A trial will convince you—Quality First.

We are also equipped to render your Wax from old comb and cappings. Our charge is only 5 cents per pound for the Wax rendered. Our steam press extracts every particle of wax possible to get.

Give us a chance to bid on your wants. Write for catalogue today. All correspondence cheerfully answered.

**THE M. C. SILSBEE CO.**
**AVOCA, NEW YORK**

---

A NEW BOOK

## Our Backdoor Neighbors

By
FRANK C. PELLETT

"I have read 'Our Backdoor Neighbors' with great pleasure, and my small boys also liked it very much. The chapters on hawks are certainly a most valuable and unique contribution to ornithology, and one, I should say, which will not be duplicated for many a long day. No one could help reading the chapter on squirrels, the skunk and the rabbit, once they had begun them.

"How many hours and how much careful observation this book represents no one but a naturalist can guess. Such books do an untold amount of good in awakening a new interest in nature and in leading others to study and observe. It is upon the study of nature that the progress of the human race depends.

"JOHN H. LOVELL, Waldoboro, Maine."

**Cloth, 210 pages, profusely illustrated with photos from life.**
**Price, postage paid, $1.50**
**AMERICAN BEE JOURNAL, Hamilton, Illinois**

Mention American Bee Journal when writing advertisers

---

## OLDS' Seed Book

**and Packet Flower Seed FREE**

FOR 30 years I have sold reliable seeds. Thousands of customers testify to this. My seeds not only grow, but produce big yields. They must make good or I will. 31st annual catalog now ready. Write for copy.

**Lists All Kinds of Farm Garden and Flower Seeds**

The best arranged, most comprehensive and easiest catalog to order from ever issued. A few specialties are:

**Certified Seed Potatoes**
**Wisconsin Grown Seed Corn**
**Pedigreed Oats and Barley**
**Wheat, Speltz, Rye, Buckwheat**
**Northern Clover and Alfalfa**
**Tested Garden and Flower Seeds**

Send postal today. Mention this paper. Will include packet flower seeds.

L. L. OLDS SEED COMPANY
Drawer 12 MADISON, WIS.

Olds' 1918 Seed Book

---

## 20 Packets Seeds—10c

We want every reader to test **"HARRIS SEEDS THAT HUSTLE."** Send 10c. now—before you forget for this mammoth collection. We send you 20 separate packets finest varieties—one each—of **Beets, Carrot, Cabbage, Celery, Cucumber, Lettuce, Cress, Muskmelon, Watermelon, Onion, Parsley, Parsnip, Radish, Salsify, Spinach, Tomato, Mixed Poppies, Giant Cosmos, Double Jap Calendula** and **Children's Botanical Garden,** a curiosity collection of flower seeds. With this collection we send rebate check for 10c. and big catalog of world's finest seeds.

HARRIS BROS. SEED CO., 184 Main St., Mt. Pleasant, Mich.

---

Write for Price List and Booklet descriptive of

**HIGH GRADE**
**Italian Queens**
And Bees by the Pound
**JAY SMITH**
**1159 DeWolfe St.**
**Vincennes, Ind.**

---

### Three-Banded Italian Queens and Bees

I am now booking orders for spring delivery of my best superior breeders. They are gentle, hustlers; winter well, not inclined to swarm. There has never been any disease in my apiaries. Untested, 75c; 6, $4; 12, $7.50; 100, $60. Select untested, 90c; 6, $5.25; 12, $10; 100, $75. Tested, $1.25; 6, $7.50; 12, $14. Select tested, $2 each. One-pound package without queen, $1.25; 12, $14. Two-pound package without queen, $2.25; 12, $26. When queens are wanted with pound packages, add queens at prices quoted above. Five per cent discount on all orders received before February 1. I guarantee safe arrival and perfect satisfaction.

S. D. CHEATHAM,
Route No. 4, Greenville, Ala.

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wisconsin**

**EARLY ORDER DISCOUNTS WILL**

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF

# BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send me a list of what you want. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

## CHAS. MONDENG

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

## FREEMAN'S FARMER North Yakima, Wash.

**Successor to Northwest Farm and Home**
**69 YEARS OLD**

If you want a descriptive and agricultural magazine, it will inform you all about the methods in the Pacific Northwest.
Send One Dollar and have the magazine sent for one year. Cut rate of one-half price now on.

## ORDER YOUR

# BEE SUPPLIES

## EARLY

**We want you to have our catalogue. Send for one.**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

## QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

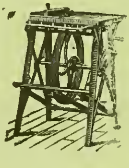
**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

## Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4.25; doz., $8.00; select tested, $1.25.
Package bees, $1.50 per lb. Including untested queen, $2.25 per lb. Order early.
My package is light. Saves you bees and express. Prompt shipment; safe arrival and perfect satisfaction guaranteed. No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

# BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# ROOT LEADERSHIP

Has come as the result of fifty years of continuous and steadfast effort on our part to render the best possible service, make goods of highest quality, and charge the most reasonable prices compatible with that quality.

OUR AIM is to continue the policy which has built up this leadership. We know that a long line of satisfied customers is the best business asset.

Order your goods as soon as possible, as it is an absolute fact that delays in shipping are rendering deliveries slow and uncertain. This year, of all years, it is up to the beekeeper to be ready with all necessary supplies, and PRODUCE HONEY. Send today for our 1918 Catalog.

### ROOT SERVICE BRANCHES

New York, 139-141 Franklin Street
Philadelphia, 8-10 Vine Street
Chicago, 215 W. Ohio Street
St. Paul, 290 East 6th Street
San Francisco, 245 Mission Street
Norfolk, Va., 10 Commerce Street
Los Angeles, 948 East 2nd Street
Syracuse, 1631 W. Genesee Street
Indianapolis, 863 Mass. Avenue
Mechanic Falls, Me.

**THE A. I. ROOT COMPANY**
**MEDINA, OHIO**

---

CYPRESS "THE WOOD ETERNAL"

Trade Mark Reg. U.S. Pat. Office

CYPRESS DEFIES DECAY

ALWAYS MAKE SURE THAT THIS TRADE-MARK IS STAMPED ON EACH PIECE OF

## "*Tidewater*" *Cypress*

*"THE WOOD ETERNAL"*

THEN YOU BUY SAFETY (AND SATISFACTION) FIRST, LAST AND 'TWEEN TIMES

Trade Mark Reg. U.S. Pat. Office

Trade Mark Reg. U.S. Pat. Office

## "ALL-HEART" GRADE FOR BEEKEEPERS' USE

**Southern Cypress Manufacturers Association**

Trade Mark Reg. U.S. Pat. Office

Address Nearest Office

**1230 Hibernia Bank Building**
**NEW ORLEANS, LA.**

**1230 Heard Nat'l Bank Building**
**JACKSONVILLE, FLA.**

MAR 4 - 19

# AMERICAN BEE JOURNAL

MARCH, 1918

THE MAGIC GIRL KNEE DEEP IN MUSTARD BLOOM
See "My Neighbor's Garden" in this issue
(Photograph by John R. Douglass)

**We offer you even better service than ever before at our new location**

**COME IN AND SEE US**

**Have you received our new catalogue?**

**Write for our 1918 Bee Catalogue now**

# Suggestions for the Wide-Awake Beekeeper of Today

If you hired a carpenter to repair your barn and he arrived without his tools, he could not give results, even if he were the best carpenter in the country.

It goes without saying that you, a beekeeper, must look to the future or the honey season will be on and your needed supplies will be tied up in some freight car—EMBARGOED.

Order from us *now,* allowing for slow freight delivery, and your supply will reach you in plenty of time.

## OLD COMB

Ship your old comb and cappings to us for rendering. We charge you 5c per lb. for the wax rendered and pay you the highest market price.

## WAX AND HONEY

We always buy Comb and Extracted Honey, as well as Beeswax, so when you have the above to offer, write us and you will be well pleased.

## Four Reasons for Our Success

**Honesty**

**Quality**

## LEWIS'S BEEWARE

If you have used LEWIS'S BEEWARE you know the quality; if not, this is just the time to invest your money where the results are lasting.

*"Made Like Furniture."*

**Price**

**Service**

**DADANT'S famous Foundation**

**THE FRED W. MUTH CO.**
214 Walnut St.
CINCINNATI, OHIO

**"QUALITY COUNTS WITH US"**

**ROOT'S Smokers and Extractors**

# Poultry Supplies

**Poultry supplies of all kinds, best automatic grain feeders, fountains, feed troughs, dry mash hoppers, bone mills, exhibition and shipping coops, leg bands, shell, grit, bone, meat, foods, and remedies ANYTHING YOU WANT. Also Pigeon, Kennel and Bee Supplies. Circular free.**

**Eureka Supply House**
**Box B-403 - Aurora, Illinois**

---

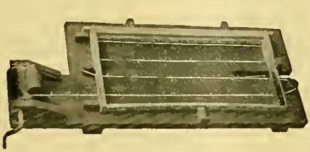
# New York and New England

Distributors of Lewis Beeware and Dadant's Foundation. We are located on the New York Central, West Shore, Pennsylvania Railroads and Rochester-Syracuse Electric Line. And all Express Companies. Let us quote you on your requirements and mail you our 1918 Catalogue. Also our Beginners' Book.

## The Deroy Taylor Co.

**NEWARK, N. Y.**

---



PATENTED
**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2.60, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calf.**

---

BUY

## THE FAMOUS DAVIS GOLDENS

**And get big yields from gentle bees. Write for Circular and Price List.**

**BEN G. DAVIS,**
**Spring Hill, Tennessee.**

---

**NOTICE—Special Sale on Sections**

No. 1 Beeway $6.00, No. 2 $5.50 per 1,000
No. 1 Plain $5.75, No. 2 $5.25 per 1,000

All other supplies at a reduced price. Get your orders in when you see this.

The Old Bee and Honey Man,
W. D. SOPER,
425 Liberty St., Jackson, Mich.

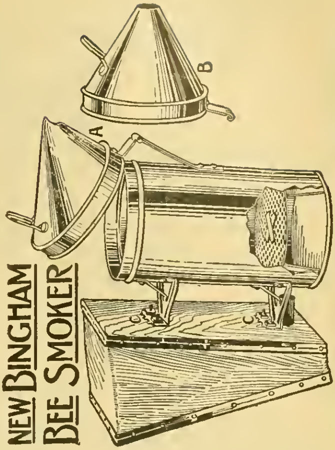
---

## New Bingham Bee Smoker

In 1878 the original direct draft bee smoker was invented and patented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly thirty-five years, and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name in the beekeeping industry.

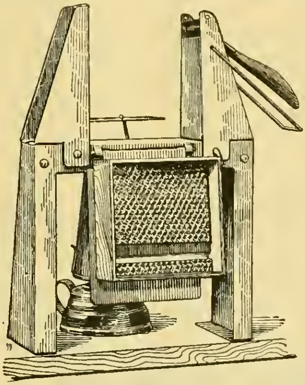
Bingham Smokers have been improved from time to time, are now the finest on the market, and for nearly forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies, or direct from the manufacturers.

Smoke Engine, 4-inch stove........28 oz.$1.25
Doctor, 3½-inch stove ..............26 oz. 1 00
Two larger sizes in copper extra.
Conqueror, 3-inch stove ..............23 oz. .85
Little Wonder, 2½-inch stove....16 oz. .65
Hinged cover on the two larger sizes, postage extra.



**A. G. WOODMAN CO.**
**Grand Rapids, Mich.**

---



## WOODMAN'S SECTION FIXER

A combined section press and foundation fastener of pressed steel construction. ONE OF THE GREAT ADVANTAGES this machine has over all others on the market in the putting in of top and bottom starters is, YOU ALWAYS HANDLE LARGE PIECES OF FOUNDATION. You know how hard it is to set small, narrow pieces for bottom starters. With this machine a large piece of foundation is set and the hot plate is again used to cut it off, leaving the narrow bottom starter. What is left of the large piece is then set for the top starter.

Price of machine, $3; with lamp, $3.40. Weight, 5 lbs.; postage extra.

THIS IS THE ONLY MACHINE ON THE MARKET from which the section always comes away right-side up, with the large piece or top starter hanging down. It does not become loosened in reversing, as with other machines.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

---

# Tin Honey Packages

**YOU WILL MAKE A MISTAKE** if you do not ask for our **Low Prices on** Friction Top Pails and Cans. We are **Saving money** for car load buyers and others of smaller lots. Why not you?

Our three-year contract is enabling us to make prices considerably under general market quotations. Let us hear from you, specifying your wants.

## Friction Top Tins

| | 2-lb. Cans | 2½-lb. Cans | 3-lb. Cans | 5-lb. Pails | 10-lb. Pails |
|---|---|---|---|---|---|
| Cases holding | 24 | 24 | --- | 12 | 6 |
| Crates holding | --- | --- | --- | 50 | 50 |
| Crates holding | 100 | --- | 100 | 100 | 100 |
| Crates holding | 603 | 450 | --- | 203 | 113 |

## Sixty Pound Square Cans

We are now booking orders and making shipments of 60-lb. cans from several different factories about the country. We believe it would be a wise idea to secure your supply early, as we have been told that the supply of tin plate will not take care of the demands. Ask for prices, stating quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

# The Guarantee that Made "falcon" Bee Supplies Possible

The **"falcon"** GUARANTEE. Every hive, every super, every crate of sections, every pound foundation, every article, and every queen leaving the **"falcon"** plant goes out with our "absolute satisfaction or money back" guarantee. For more than a third of a century we have stood behind everything we sell. If anything is wrong or not just what you thought it would be, we'll appreciate it if you will write us, and we'll make it absolutely right at our expense. Our satisfied customers are to be found everywhere, and our best advertisement. "Once a customer always a customer," is synonymous with the name **"falcon"**

The beekeepers' past experience when "short" should have taught him that it's a "wise move" to get hives, sections and supplies ready in the next two months. We will be glad to quote on **"falcon"** supplies if you will send us an approximate list of what you will require for the coming season.

**Red Catalog Postpaid** **Dealers Everywhere** **"Simplified Beekeeping" Postpaid**

**W. T. FALCONER MFG. CO., Falconer, New York**

*Where the good bee-hives come from*

# Bee Supplies Bee Supplies

## READ — ORDER EARLY

Owing to the congestion of freight and embargoes, we caution all beekeepers to get their order in early, otherwise you will suffer a great loss when you actually need goods, and you perhaps will be unable to get them for the above reasons. We have a large stock on hand, and can fill orders promptly, provided the railroads will accept freight.

*Send for our new catalog.*

**C. H. W. Weber & Company**

**2146 Central Ave.** **Cincinnati, Ohio**

# TENNESSE-BRED QUEENS

**45 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to July 1 | | | July 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $13.50 | $1.00 | $ 5.00 | $9.00 | $ .75 | $ 4.00 | $ .75 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 | 1.00 | 5.00 | 9.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 | 1.50 | 8.00 | 15.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 | 2.00 | 10.00 | 18.00 |

Nuclei (no queen) 1 fr., $1.50; 2 fr., $2.15 ; 3 fr., $2.75; 4 fr., $3.50; pure 3-band Italians. Select queen wanted; add price.

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

# Paint Without Oil

**Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.**

**A Free Trial Package is Mailed to Everyone Who Writes**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

# WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

# SAVE TIME = SAVE HONEY

An article in a recent business magazine gave the details of a saving plan instituted by a factory employing 2,000 men. By installing time-saving machinery the firm figured that it saved one hour's time of all its employees each week, or 2,000 hours per week for the factory.

This, when totaled for the year, amounted to over $30,000 saving, a sum which more than paid for the small amount of machinery required to start the time-saving plan.

## YOU ARE THE HONEY FACTORY MANAGER

## YOUR BEES ARE THE EMPLOYEES

They have a very short working season. All the more reason that you should save every minute for them when there is honey in the field to gather.

If you can cut down the time required for them in the hive to build combs by a few hours, you can increase their output just that much. And you can do that very thing—*Anyhow, others do it. Read*—

**As far as I am concerned, your Foundation is in a class by itself, and the bees are of the same mind, as I have tried putting one of your sheets on one side and other makes on the other side of the cluster, and they took to yours like ducks to water.**

**WALTER H. LEONARD,**
**January 24, 1918. Raynham Center, Mass.**

When you place your order for foundation with your supply dealer insist that he send you DADANT'S. If he won't furnish it, there are plenty of dealers who will. Or order of us.

## DADANT & SONS

**HAMILTON, ILLINOIS**

*P. S.—Conservation should be your watchword. Save every scrap of old comb, scrapings, etc., and when you have 25 pounds or more send it in to us. We can convert it into* DADANT'S FOUNDATION *for you.*

# *ANTICIPATE*
# *Your 1918 Bee Requirements*
# *NOW!*

**HELP US CO-OPERATE WITH THE GOVERNMENT BY ORDERING YOUR BEE SUPPLIES FOR NEXT SEASON NOW!**

Transportation conditions may not permit of prompt shipments later on. Now, of all times, the Beekeeper **should not put off until tomorrow what he can do today.** You owe it to your country and to yourself to prepare at once for the gathering of the nineteen eighteen crop.

**Have You Enough Hives?**
**Have You Enough Supers?**
**Have You Enough Frames?**
**Have You Enough Sections?**

And have you enough of the rest of the things you will need?

THE LEWIS FACTORY IS NOW OPERATING NIGHT AND DAY TO TAKE CARE OF THE SEASON'S DEMANDS

Help us while we are helping you. Place your orders now, so manufacturers and dealers can help their country --- your country, you and themselves, by preparing now for your needs.

THE NEW LEWIS CATALOG
IS NOW OUT

## *G. B. LEWIS COMPANY*

*Manufacturers of Beeware*
*WATERTOWN, WISCONSIN*

AMERICAN BEE JOURNAL

VOL. LVIII—NO. 3 HAMILTON, ILL., MARCH, 1918 MONTHLY, $1.00 A YEAR

# POLLEN AND POLLEN PLANTS

BY JOHN H. LOVELL

It is seldom in the Northern States that bees run short of pollen, although this occasionally happens in early spring. Usually a supply sufficient to last until the willows and elms bloom is carried through the winter. The only locality in this country known to the writer, in which serious pollen famines occur is in the tupelo section along the Appalachicola river. Most of the pollen here in April and May is obtained from willows, maples, elms and oaks. The tupelo yields very little, and there is not much general farming. The tupelo flow, writes W. D. Achord, averages from April 20 to May 5, during which from 50 to 125 pounds of honey are stored. There is plenty of pollen up to about June 15; but after that there is little or none for from 60 to 90 days, or until September. One hundred miles northward there is an abundance of pollen throughout the season. The colonies become very weak and the queens cease laying; but neither Achord nor Marchant, two prominent beekeepers in this section, feeds substitutes.

But in Australia pollen famines are as regular as the seasons themselves. There is a "critical period" in mid--summer, when the pollen fails, the queen ceases to lay eggs and the brood dies of starvation. This shortage is attributed by Rayment to the failure of the gum-trees, or eucalypti, to produce much pollen. There are some 200 species of gum-trees in Australia, which cover great areas of arid land. So lavish is the flow of nectar that three or four nests of wild bees have been found in a single tree, and when a flowering branch is shaken the nectar falls like rain. But so small is the supply of pollen that colonies of bees working on yellow gum dwindle down to mere handfuls, although there is a fine crop of honey. Beuhne says that he has used all kinds of substitutes in large quantities, but, although the hives were well filled with brood, the bees thus raised were lacking in vitality and were short-lived. He has never been able to obtain a strong force of field bees.

Cannot, then, substitutes for pollen be used to advantage? When there is a scarcity of pollen the bees bring in bits of fresh sawdust, spores of fungi, and occasionally, in the vicinity of cheese factories, cheese mites. The beekeeper usually resorts to rye meal, cottonseed meal, wheat flour, oatmeal or pea meal, and sometimes to strange mixtures of eggs, milk and sugar. Rye meal is a favorite spring feed, and cottonseed meal has been strongly advocated. If it is desired to feed the meal inside the hive flour candy is used. This is made by mixing one part of rye meal with three parts sugar and a little water, and cooking it until it will sugar. It is then vigorously stirred and poured into greased pans. It is difficult to make, may cause brood rearing at the wrong time, and is probably of no benefit.

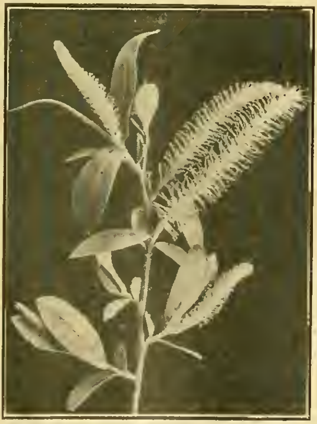


Fig. 1. WHITE WILLOW (*Salix alba.*) Staminate or pollen-producing catkins. A large, freely blooming tree.

The bees gather rye meal eagerly, indeed they may gather too much of it; and Root says that he has known the combs to be packed with it to the exclusion of pollen. Neither can there be any doubt that these substitutes stimulate brood rearing, for in colonies in which were healthy queens but no pollen, eggs or brood, three days after rye meal had been fed, there were a large number of eggs in the cells. The fact that brood rearing can thus be stimulated has led many beekeepers to jump to the conclusion that the use of pollen substitutes must be desirable; but Allen Latham has recently asserted that they are not only not beneficial but are positively injurious. He found that later in the season the colonies not fed were in better condition than those that were. We think these conclusions sound: Feeding meal in early spring causes the bees to waste away by flying out in cold weather when they had better remain quiet; injures their digestive powers, and the weak brood and bees thus obtained lessens rather than adds to the strength of the colony.

There are no plants more valuable for pollen in early spring than the willows, especially the pussy willow *(Salix discolor)*, the earliest of the willows to bloom. Provide an ample pollen supply by planting along the brook or in low waste land as many of the staminate bushes as you can. Do not plant the pistillate bushes, for they yield no pollen. The staminate bushes bloom regularly and produce enormous quantities of pollen. They also secrete nectar freely. They have this advantage over the elms, alders, birches, oaks and other wind-pollinated plants that none of the pollen is lost. They are insect-

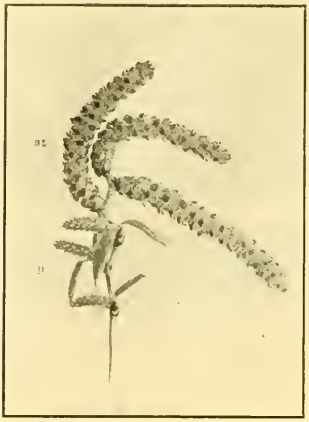


Fig. 2. YELLOW BIRCH (*Betula lutea.*) St., staminate flowers; p, pistulate flowers. A wind pollinated tree producing large quantities of pollen.

pollinated and the pollen is so adhesive that none of it is carried away by the wind. Shake an alder branch in full bloom over a sheet of white paper and it will be covered with pollen; do the same with a branch of "pussies" and only a few grains will fall. Many wild bees, ants and flies, however, visit them. A little later in the season the staminate trees of the white willow will be a great help. (Fig. 1).

Bees not infrequently gather pollen from the alders, elms and other wind-pollinated trees (Fig. 2), and if you have an avenue of elms you have little to fear from a dearth of pollen early in the season. The maples are far from being as good pollen plants as the willows. If only bees would gather pollen from the fir spruce, pine and running juniper they would, for a while, be provided with an inexhaustible store. Beat a running juniper bush with a stick and the air will be so filled with pollen that you will be glad to retreat. The clouds of pollen from the pines are easily mistaken for smoke. (Fig. 3.) The pollen seems to be too resinous to suit the taste of bees. During bloom there is, of course, no lack of pollen in the northern and western States.

Of herbaceous plants blooming in May I know of none more valuable for pollen than the dandelion. My apiary is surrounded for about two weeks with an almost unbroken sheet of yellow flowers. This result was obtained by permitting cultivated plants to produce seed. The pollen is very abundant and easily gathered, and the bees are constantly bringing it into the hives. A more pleasant, cheerful display can hardly be imagined, and many persons ask the privilege of digging "greens."

The planting of corn by the million acres renders it more important as a source of pollen than any other cultivated plant, and it blooms, moreover, at a time when pollen flowers are apt to be scarce. It is wind-pollinated and wholly devoid of nectar. Yet of the mythical honeys "corn honey" is the most famous. Only a few months ago a report of a phenomenal yield of corn honey came from Louisiana. The flow continued for more than a month; the cornfields swarmed with bees to an extent never before witnessed, and good colonies averaged 100 pounds or more from this source alone. Corn honey is described as light amber in color and pleasantly flavored; it had previously been supposed to be dark and strong flavored.

Think of it, 100 pounds of corn honey per colony. Who will now be surprised to hear of the sale of ambrosia by the bottle? At a gathering of beekeepers an apiarist still insisted, after the structure of the bloom had been described,* that his bees brought in a little honey from corn. It is claimed that the nectar is secreted by the silk and in the axils of the leaves. Now the silk is composed of the thread-like glutinous stigmas, and it would not only be useless but would be positively harmful to the welfare of the plant for them to secrete nectar, and as a matter of fact they never do. Whence come, then, the stories of corn honey? We have all seen bees gathering pollen from the spindles of corn, and Frank C. Pellett says that he has seen multitudes of them so engaged. As plant-lice are sometimes found on the foliage or stalks of corn he suggests in "Productive Beekeeping" that the gathering of honey-dew may have given rise to these reports. This seems not improbable, especially in a warm climate, and would offer an explanation of the different qualities of corn honey in different years.

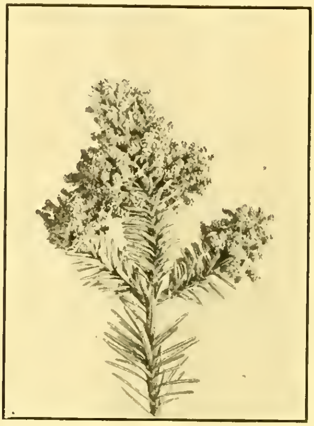


Fig. 3. BALSAM FIR (*Abies balsamea.*) Staminate cones producing quantities of pollen, but the bees do not gather it.

In many instances, however, "corn honey" is purely a product of the imagination, like the "tule honey" of California. The tule is a wind pollinated sedge growing five to ten feet tall, and covering some 500,000 acres of wet land; in the delta region of the San Joaquin and Sacramento rivers there are estimated to be 50,000 acres of tule. As there are many beekeepers who suppose that all flowers are nectariferous, it is not surprising that they believe that this great expanse of vegetation must be the source of much honey; but Richter very properly denies the existence of "tule honey."

Since both the wild and domestic bees would speedily perish if deprived of pollen, it is astonishing to note how little attention this subject has received from the bee journals. In looking over the indices I have been surprised to find that in some years there is not a single entry under pollen, while in others there are only two or three, mostly notes relating to pollen substitutes, or the exclusion of pollen from the honey. Pollen plants certainly grow in a terra incognita of the beekeeper's world, and pollen problems are left largely to the bees. Yet they are very vital questions, and nature has spared no pains in equipping the bees with apparatus and mental qualities to deal with them. And in the end what is vital to the bee is vital to the beekeeper.

The clovers, contrary to the general impression, are not good sources of pollen. In the white clover the anthers, the organs containing the pollen, are enclosed in a keel formed by two petals and emerge only when the bee's head rests upon it; thus bees never gather pollen directly from the clover blossoms. More or less of it is deposited on the under side of the head or body by the floral piston mechanism, which the bee brushes up with its legs and deposits in the pollen baskets. I have watched bees at work on white clover day after day, but have never yet seen one attempt to obtain the pollen; and many of them had no pollen on their hind legs, and, as a rule, the masses of pollen in the baskets were small. The pollen is almost invariably described as brown or greenish brown, and on the bee's

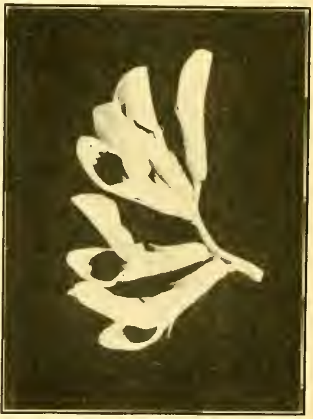


Fig. 4. BEAN (*Vicia faba.*) The stamens are enclosed in the black-spotted keel, and consequently bees cannot gather the pollen. It belongs to the same family as the clovers, but by reason of its larger size shows more clearly why bees can bring away only the pollen the flower places on them.

legs or in the hive after it has been moistened with nectar it is brown; but in the flower it is bright yellow. Not all brown pollen in the hive comes from clover, and I have examined specimen after specimen under the microscope without finding any clover pollen. Irregular flowers, like peas and beans, do not furnish much pollen. (Fig. 4.)

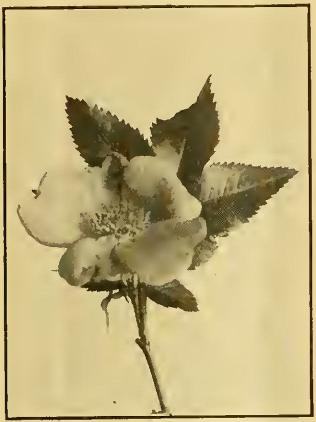


Fig. 5. Wild rose (*Rosa humilis*) A pollen flower with many stamens.

Groves of nut trees, such as the pecan, hickory and chestnut, the only nut trees which have been domesticated in this country, furnish an abundance of pollen. Rayment says that in Australia the date palm is a "splendid honey plant"; but he adds in the next sentence that large crops from it have never been reported. A part of the trees are staminate and a part pistillate and the pollen is carried by the wind, not by insects. In other words, it is not a honey plant at all, although bees very often visit the staminate trees for pollen. But wild roses are splendid pollen flowers, and the bees, both wild and domestic, visit the flowers so eagerly, as soon as they open, that the entire supply is carried off in a few hours. (Fig. 5.) The California poppy is also a good pollen flower, and in the valleys of that State covers the ground with a golden carpet much visited by bees for pollen. As for the banana, you can gather pollen by the spoonful, and bees work on it much as they do on a pile of meal. In warm regions where there are acres of this fruit there must be enough pollen to meet all requirements.

In autumn a large amount of pollen is gathered from the goldenrods and sunflowers. (Fig. 6.) They belong to the largest plant family, the compositae, which also includes the asters, Spanish needles, gum-plant, broomweed, thistles, boneset, crownbeard and marigold. In moving over the flower clusters bees controvert the familiar proverb that it is possible to do well only one thing at a time, for they suck nectar and sweep up the pollen simultaneously.

In New England large quantities of goldenrod pollen are stored away for another season. To the same family belongs that pernicious weed, the Roman wormwood, so common in worn-out fields, a wind-pollinated plant, which produces so much pollen in late fall that it is said to be one of the causes of hay fever.

We have shown that the pollen supply in a locality may be increased by planting the staminate bushes of the willows, by setting out avenue and nut trees, by seeding the land with dandelions, by raising corn, and also sunflowers, where the latter do not grow wild. The sunflower produces a great amount of pollen and yields it for a long time. In this connection it may be inquired whether there are any foreign plants the introduction of which would increase the pollen supply. One of the most promising is cape weed (*Cryptostemma calendulaceum*), the most important pollen plant of Australia, which was introduced from South Africa in 1836 and has since spread over the entire Australian continent. Its leaves and flowers resemble those of the dandelion, and it not only yields large quantities of bright orange pollen but it is a good honey plant as well, and excellent feed for milch cows. A full description of this plant appeared in the American Bee Journal for December, 1915.

Rejecting the feeding of pollen substitutes as of no benefit, or injurious, there are only three ways in which a beekeeper can meet a pollen famine. He may increase the number of plants producing pollen in large quantities, as has just been described, or, secondly, he may move his hives to another locality temporarily; or, thirdly, he may give combs of pollen. A. B. Marchant described some time ago in Gleanings in Bee Culture how he would make use of the second method. From April to June his bees were to remain in the tupelo section, storing an ample crop of honey. After the flow was over they were to be removed to an island some 15 miles southward, where pollen was more abundant, and where they were to remain for the balance of the year.

A writer in the American Bee Journal has pointed out that it is as necessary for beekeepers to reserve surplus combs of pollen as it is combs of honey. It may in some cases be even more important, since we can feed sugar syrup, but have no substitute for pollen. It not infrequently happens, especially in localities where pollen is very abundant, that combs largely filled with pollen can be removed from a hive with apparent advantage. Bees without queens are said also to store large quantities of pollen. If put in a very dry room combs of pollen will keep for a long time, indeed, so far as I know, indefinitely, for the lycopodium powder sold by druggists is nothing more than the spores of club mosses. Why should not these combs of pollen be offered for sale like other bee supplies? The introduction of a few of them into a hive would often make a great difference in the season's results. We need to know more about the quantity of pollen a colony requires, and its relation to the economy of the bees and the gathering of the nectar.

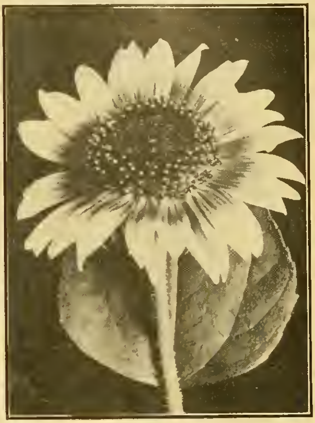


Fig. 6. SUNFLOWER (*Helianthus annuus.*) Each morning two circles of florets bloom, so that it remains in blossom a long time. Notice the little masses of pollen on top of the flowers.

There are many problems relating to pollen and pollen plants that will well repay investigation.

Waldboro, Maine.

**The Missouri Meeting.**—The meeting of the Missouri Apicultural Society was held at Columbia during Farmers' Week. The weather was most unfavorable with extremely cold weather following a heavy snowfall. Trains were late, and some were annulled entirely. As a result, many were discouraged from attending. However, the program was carried out substantially as planned as most of those who could not attend sent their papers. Since a number of the men who have been most active in the affairs of the association were unable to be present, it was decided to retain the present officers until a time when they could attend. Prof. L. Haseman resigned as secretary and the place was filled by selecting Mr. A. V. Small, of St. Joseph.

Mr. E. M. Atkins, one of the men engaged in emergency work in the Bureau of Entomology, was present. He has been assigned to Missouri, Kansas, Nebraska and Iowa and will divide his time between the four States. Plans are under way for some field meetings to be held next summer. A special feature of the meeting which attracted much attention from short course visitors, was a bee demonstration in a cage by Mr. E. E. Tyler. A talk on Using Honey to Save Sugar, by Miss Louise Stanley, of the college staff, attracted a number of ladies who were in attendance on other meetings held at the college at the same time.

Mr. George O. Shinji gave an interesting account of beekeeping in Japan to an appreciative audience. Taken altogether, the meeting was well worth while, in spite of the extreme weather.

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
**First Nat'l Bank Bldg., Hamilton, Ill.**

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

**IMPORTANT NOTICE**

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS.—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which show that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C. P. Dadant.)

# *THE EDITOR'S VIEWPOINT*

### How Old is the Smoke Method?

There is an old saying that there is nothing new under the sun, and this seems to apply particularly to bee culture. Most of us have had the experience of making some (to us) new discovery, only to learn later that somebody else had given it to the world, in some form, before we were born.

A few months ago there was much discussion of the smoke method of introducing queens and some seemed to think that it was entirely new. Henry Alley wrote in his book, "Beekeeper's Handy Book," more than thirty years ago, as follows:

"When tobacco smoke is used to introduce queens, throw some grass against the entrance to keep the smoke in and the bees from coming out. Blow in a liberal amount of smoke and then let the queen run in at the top through the hole used for the cone-feeder."

There is nothing to indicate that the plan originated with Alley. In fact, from reading the above extract one would get the idea that it was a common method of introduction at that time."

### The Mason Bees

To the nature lover, no more fascinating stories have ever been written than the books by Henry Fabre, the French Naturalist. These are now being translated into English and published by Dodd Mead & Co., of New York. In the "Mason Bees" we find some very interesting accounts of experiments that throw some light on insect intelligence. All beekeepers have noted the care with which the hive-bee marks the location of her hive and the precision with which she returns to the exact spot of its location. If moved even a few feet she finds much difficulty in locating it again. The Mason bee was unable to find her nest when moved but two or three feet distant. Even if she found it she was unable to recognize it as her own in its new position and started a new nest rather than accept the old one in a new place. On the other hand, when the nest of another bee was placed in the exact place where her own had been it was accepted without question, even though it did not resemble her own.

Mature bees carried to a distance of two miles from their nests returned directly, usually stopping to gather a load of honey or pollen on the way. Experiments indicated a strong homing instinct in these wild bees. This is the same instinct that guides the carrier pigeon to its home, even though it is carried in a dark basket many miles from any place it ever knew.

In marked contrast, he found the Amazon ant unable to find its way home from any distance except by the exact route it had followed on the going trip. If placed even two or three feet aside from its path it was unable to find its way back again, and wandered around in hopeless confusion. The book is well worthy of a place in every nature lover's library.

### California Beekeepers

The California Beekeepers Association seems likely to organize itself into a Co-operative Association and the Western Honey Bee is doing all it can to promote this. It would be a step in the right direction. The time is coming when such organizations will be found everywhere, we believe.

### Are the Cells of the Bees Hexagons?

Mr. E. F. Bigelow, editor of the "Guide to Nature," in an article published in his February number and illustrated with numerous beautiful studies, criticises the making of comb foundation in hexagon cells, because he holds that the bee does not build hexagons He brings, in proof of this, cuts of foundation partly finished by the bees in which the tops of the cells are round. He also mentions the fact that queen-cells are always round.

The bees build their cells with the least expenditure of costly material, beeswax. Economy requires that the cells be built so as to fit closely to each other and the six-sided shape is the most economical. On the other hand, the surface of the cells must be strong enough to carry the bees in their travels, so the bees make a heavier rim at the surface. When we uncap the sealed honeycombs we destroy the strength of the upper edge and uncover the hexagonal shape. But the bees, as soon as the comb is returned to them, hasten to give it the stronger surface, by rounding the tops of the cells.

Foundation mills used to be manufactured with a rounded cell. The Dunham mill, which was so popular 35 years ago, made foundation with round cells. But the bees always excavated the surplus wax from the three-corned angles and used it in other parts of the comb. So, after all, comb foundation with hexagonal cell walls is **not** an error.

But that the hexagons of the cells are not always perfect does not admit of a doubt. Neither need we doubt that, if the bees had plenty of material, they would probably build all their cells round, for their bodies are round.

### The Mating of Queens

"A study of the factors which govern mating in the honeybee," Bulletin No. 34, of the Michigan Agricultural College Experiment Station, by Dr. George D. Shafer, is before us.

This is a scientific description of

the mating organs of both the queen and the drone, and a study of the position assumed by the insects in the act of copulation. It should be of interest to all scientific students of bee anatomy, though containing too many scientific terms to be read with profit by the average scholar.

The text is accompanied by two plates of drawings and photographs. Mr. Shafer shows that he has carefully studied his subject.

Slowly but steadily these cloudy questions are getting more distinctly understood. The amount of research which has been expended, for so little positive knowledge, shows how much remains to be done. Praise is due to the men who spend years of their life in these arduous studies.

### American Honey in Italy

According to L'Apicoltore, of December, 1917, they have received in Genoa about 11,000 quintals of American honey, which was selling at 500 lire per quintal. We first figured this at the regular exchange price of lire for dollars. But the Italian lire is now very much depreciated in its exchange for our money. The usual exchange value is 5.20 per dollar; the present is (January 22), 8.40 per dollar. The quintal is 220 pounds. The honey was, therefore, selling at Genoa at 27 cents per pound. Whether this honey was from North America, the West Indies, or the Spanish-American republics is not mentioned.

When we realize that transatlantic rates are soaring beyond all reason and that the risks of transportation make marine insurance very high, perhaps this price of honey is not more than would necessarily be expected.

### Beekeepers' Conventions

Formerly it was the custom of the bee journals to give extended accounts of the various meetings of beekeepers. This is no longer possible, because the number of conventions has increased to the point where to do so would occupy all the available space in the Journal. Where there were formerly but a dozen or two conventions of importance in the entire country, now more than that number are held within the limits of a single State. We are always glad to receive notes concerning the various meetings, but would call the attention of the correspondents to the necessity of making the accounts as brief as possible.

### Securing Sugar For Feeding Bees

From early reports coming in where bees have had a good flight and it has been warm enough to make a superficial investigation, it appears that bees have consumed a large proportion of their winter stores already and that feeding will have to be done early and in quantity.

The shortage of sugar is acute, but we believe that beekeepers will have no trouble in getting such sugar as they will need if they take the matter up with their grocer or with their nearest wholesale house, executing affidavit as below and explaining the matter thoroughly. The Food Administration has expressed its desire to see that all beekeepers are supplied with sufficient sugar.

If you are unable to get sugar locally, execute affidavit as below and send it at once to your State Bee Inspector so that he may take the matter up at once and do what he can to get the sugar.

If desired, he will furnish copies of this affidavit free. However, we urge every beekeeper not to wait, but to make proper affidavit and take the matter up at once. A week or two may make it too late.

Following is copy of affidavit:

STATE OF ----------------
ss.
County of ------------------

I, ----------------------------------, being duly sworn, state upon oath (or affirm) that the following statements are true:

I am the owner or have in my possession ---------- colonies of bees. The bees above mentioned will need sugar for food in order to live or be in suitable condition for gathering surplus honey during the season of 1918. I estimate that I will need -------------- pounds of granulated sugar for the purpose of feeding. If I am permitted to secure this sugar or any part of it, I will use it for food for the bees and for no other purpose and if any remains unused at the beginning of the surplus honey flow, I will return it to the dealer from whom I purchased it or to whomever the Federal Food Administrator shall direct.

My postoffice address is ------------------------------------------------

My nearest shipping point is --------------------------------------------

----------------------------------------(Seal)

Subscribed and sworn to before me this ---- day of ---------------- 191--

------------------------------------------------
Notary Public

My commission expires -----------------------------------

The above affidavit must be executed before a Notary Public or other officer qualified to administer oaths.

### Food and the War

The need of saving food is imperative if America is to win in the world war. Pork, wheat and sugar are the most available food for transport to feed the armies, because they are readily preserved and easily carried. We can live without discomfort on such products as cannot be sent abroad. To make the most of what we have will require readjustment of the food habits of the average American family, but there will be no complaint on the part of the loyal citizen intent on making any necessary sacrifice in order to support our soldiers in the field.

To give the housewife the best available information concerning the work of the food administration and suggestions providing the best possible food for her family, while at the same time saving the foods designated, we have arranged for a series of articles on "Food and the War," by Mrs. Mary G. Phillips. Living in Washington, Mrs. Phillips has an excellent opportunity to keep in touch with the work of the government. We commend these articles to the attention of the ladies.

### Honey Production in British Columbia

The Bulletin on honey production in British Columbia shows reports of 382 beekeepers owning 1,685 colonies with a crop per colony of 51 pounds.

The harvesting of honey-dew by their bees in 1916 resulted in a winter loss of about 40 per cent.

# GROWING SWEET CLOVER

## Cultural Requirements of the Plant Under Field Crop Conditions

IT frequently happens that, having seen sweet clover growing along roadsides, on gravelly banks and other unpromising situations, we are surprised to fail in getting a stand in a well prepared field. Sweet clover requires a firm seed bed, and will not succeed on land where the soil has been deeply stirred and left in a loose condition. It is well to scratch the surface with a tool that does not penetrate deeply, leaving the surface loose for an inch or so, and compact below. While it will succeed on a great variety of soils, it requires that they be in well settled condition and not freshly plowed to a depth of several inches, such as best suits many forage plants. This condition probably accounts for more failures in getting a stand of sweet clover than any other cause.

Sowing the seed on top of the ground or on the snow in winter, will often secure a good stand with no cultivation at all. Good results often come from sowing it with small grain in spring, on land that has been cultivated the previous season. Some succeed by sowing after the last cultivation of corn, the seed germinating to some extent the same season, while some does not sprout until the following spring. The ideal condition is to cover the seed from half an inch to an inch with finely pulverized soil, with a firm soil underneath.

TAKING SOIL FOR INOCULATION FROM A SWEET CLOVER PATCH

### Time of Sowing

Sweet clover may he sowed in winter or early spring, as above stated, or at any time from March until August. It should not be seeded when it is likely to start so late that it will not have time to establish itself firmly before winter. Under the different conditions of soil and climate of this great country, it is difficult to give general directions that will apply everywhere.

The time of sowing will depend much upon the manner in which the crop is to be handled. Where it is desired to sow the seed on old meadows or pastures without plowing, it will probably be best to scatter it in winter or early spring. The freezing and thawing have a tendency to soften the hard coat of the seed, as well as to cover it with earth. As a field crop, the writer's limited experience would indicate that spring sowing, with a nurse crop that can be cut early, will be best.

There is a great diversity of opinion as to the proper amount of seed to sow. Where it is used to thicken up meadows or pastures a smaller amount is needed than where sown as a field crop on newly prepared land. Some growers say that 4 pounds of good unhulled seed per acre is sufficient to sow on grass lands. As high as twenty pounds of hulled seed per acre is advocated by some for a field crop. The seed covering is very hard, and, unless treated, only about half of it will grow the first year. If the seed is scarified the hard coat is scratched until it germinates readily, and much less seed is necessary to secure a stand than otherwise. Ten pounds of hulled and scarified seed per acre should be sufficient on good land.

It is often difficult to get a stand on old land which is deficient in lime, for lack of the nitrogen-gathering bacteria that thrive on the roots of the clovers. It is sometimes necessary to treat a small area with a good coat of manure, and sometimes with crushed lime. After the sweet clover is growing well on this land the area can be gradually extended.

### Utilizing the Crop

Probably there is no forage crop which will furnish as much pasture per acre as will sweet clover in its second year of growth. It should be allowed to get a good start in spring before stock is turned in, and the area should be sufficiently large for the animals thus kept. Cattle, hogs and horses all eat it with relish after they become familiar with it, and thrive equally on it. It is a common practice to pasture the crop during the first part of the second season and then to turn the stock off and harvest a seed crop. The writer has harvested a very good crop of seed from a limited area, which was pastured lightly through the entire summer until the crop was cut. Of course, it is not possible to pasture heavily after midsummer, and still secure a good crop of seed.

Sweet clover makes a good quality of hay if cut at the proper time and well cured. If a seed crop is to be cut, the first crop of the second season may be cured for hay by cutting high enough to leave some of the small branches on the lower part of the stem. If cut too low at this time the plants will die. Sweet clover hay requires more time to cure properly

CUTTING WHITE SWEET CLOVER

than the clovers with smaller stems, but if piled in small cocks it is little damaged, even though some rain falls on it. If properly cured, it makes a very good winter feed. When cut for hay it should be mown before it begins to bloom to any extent. When it is about two feet high is the right time. The first year it may be cut at almost any time the grower finds it convenient.

Some practice sowing sweet clover with early oats, cutting the oats with a high stubble, and, later, getting a crop of hay.

### Saving the Seed

The seed crop sometimes fails because the plants are too thick on the ground. They spread or branch widely as they grow, and where they are too thick the blossoms may drop off without setting a full crop of seed. Usually best results are obtained where a first crop is cut for hay or is pastured until midsummer. The second crop does not grow as high as the first would do if permitted to seed, thus making it easier to handle. Seed is obtained only the second year, and if the first growth of that year is permitted to seed, the plants will die when cut, so that only the one crop can be obtained.

The seed ripens so irregularly that it is not always easy to tell just when it should be cut in order to save the largest amount of seed. At best much of it will shatter off and be lost, since the first to ripen will be ready while there is still a large amount of bloom. The most seed will be secured by cutting when about three-fourths of the seed pods have turned brown. If cut sooner there will be too many blossoms and immature seeds; if cut later too much of the ripe seed will shatter in the harvesting. Usually enough seed shatters off to reseed the land. Some growers have been able to continue the same land in sweet clover for fifteen or twenty years by sowing two years in succession to begin with. After the first year, a crop of seed will ripen every year.

It is something of a problem to harvest the seed without losing a large portion of it. The writer has cut a small field with an ordinary mower when the plants were wet with dew, and immediately raked it into windrows. This method is hardly to be advised where the seed is to be hauled to a threshing machine, since more of the seed will be wasted than where it is bound into bundles. This small field was threshed by hand with forks. A large sheet of canvas was laid on the ground, and the sweet clover carefully lifted on it, after it was fully dry. By beating with the forks the seed was readily separated from the stalks.

The ordinary grain binder is generally used for this purpose. Where much seed is to be harvested, it is necessary to provide some special pans to catch the seed that shatters off. Corn binders have been used in some cases.

When threshed with a grain separator, the straw is broken up so much that it makes a fair forage for wintering cattle or horses. They will not eat it readily where threshed by hand, since the straw is not broken up to any extent and the dry stalks are too coarse otherwise.

Those interested in this subject will do well to write to the U. S. Department of Agriculture for Farmer's Bulletins 797, 820 and 836, all of which deal with different phases of the culture of sweet clover. They give in much greater detail information that space will not permit here.

## Quadruple Vs. Single Row Winter Cases

By G. C. Greiner.

THE old adage, "Convince a man against his will, he is of the same opinion still," contains more truth than poetry. And this is not strange. After we have spent almost a lifetime using certain appliances and tools it becomes, as it is termed, second nature to us, and with normal, natural abilities we become experts in their application. To make a break in our accustomed habits and adapt ourselves to new methods would not only be up-hill business, but in many instances would cause heavy expenses and extra labor. The beaten path, crooked as it may be, is always easier traveled than deep snow on a straight line, even if we could save one-half of the distance. In fact, if we should undertake to make a short-cut of this kind, the average people would call us "cranky," no matter how much they would be benefited by our effort in the end.

A FIELD OF SWEET CLOVER AT HARVEST TIME.

SWEET CLOVER ON THE LEFT, GRIM ALFALFA ON THE RIGHT

These conditions we meet in almost all walks of life. It is not only the beekeeper of many years' experience, who thinks his beaten path is the straightest, but all other occupations are laboring under the same deception.

It is not my object to open up any controversy with either the quadruple, the straight row or the single colony advocates. Each one of these three methods has its advantages. This cannot be denied, and it would hardly be advisable for anyone who is accustomed to his particular kind and has stocked up with an extensive outfit in that line, to make a change. Besides the dollar and cent point of our occupation, contentment of mind is worth a great deal. If we can perform our daily tasks to our own comfort and satisfaction, life becomes a pleasure and is worth the living.

For the benefit of our younger brother beekeepers who have not yet decided which kind of winter case to adopt and are contemplating making a supply during winter for future use, I will enumerate a few pros and cons of the quadruple and straight row case, as I have gathered them up during my many years of experience and observation.

The single one-colony case used by many experienced beekeepers with good satisfaction, we will leave out of consideration, as the preference of the majority of beekeepers seems to be one or the other of the two larger kinds.

When I left my bee-cellar dug into a gentle slope of one of Naples' sidehills nearly twenty years ago and moved to my present location, which is situated on the level plains of Niagara County, the wintering protection problem was uppermost in my mind. Although surrounded by orchards, groves, buildings, etc., the new locality offered no dependable windbreak for my bees, and as wintering out doors had become a much-talked-of subject at that time, I decided to add winter cases to my beekeeping outfit.

From my earliest beekeeping days I could see almost numberless advantages in keeping bees in straight rows, all facing one way (east or south), and as a natural consequence my choice was the single one-row winter case. Being always cautious when launching out onto new schemes of this sort, wishing to make sure of their practical use, I made only two or three as a trial the first season. In planning my work I made the great mistake of considering the economical side of labor and lumber only, leaving all other, much more important features in the background. I was shortsighted enough to build my cases, or sheds, as I generally call them, for nine colonies, making them as long as 14-foot lumber would allow without waste.

When I moved my sheds to the yard (in sections, of course, for I could not handle them all put together) it dawned upon me at once that I had made a great blunder. Where should I get the bees to fill them? It would take the bees from half way across the yard to do it, and to spread them out again in the spring would be a long, disagreeable task. I did not use the unwieldy things a second time, but before another packing for winter came around I had them cut into two parts, making a five and three-colony case of each one of them. That relieved me in a measure of shifting my bees first towards the large sheds and then back again to their summer stands in the spring.

Since then I have had the five and three colony sheds as a mixed lot in my yard and find that the smaller ones are by far the most practical and convenient to use, so much so that I have begun to cut down the larger ones to the smaller size, making one-colony cases of the cut-off pieces.

In speaking of the quadruple cases I do not intend to belittle anybody's work or theory. On the contrary, if properly made and rightly managed they give good satisfaction. Some of our best beekeepers use and recommend them, and they know whereof they speak. Economizing heat by way of the enclosed colonies standing side to side and back to back is one of their most important features. In proportion to their cubical capacity they are most economical in regard to the lumber used in their construction, and we all know that it requires less roofing to cover a square than an oblong.

But it is also an undeniable fact that they have some undesirable features. For instance, one-half of their inmates have to face the opposite direction from the others, always exposing one side or the other to the severity of prevailing storms. Another objection is their clustered position. To have access to all four, the operator is obliged to walk constantly from one side to the other and always pass in front of the hives. Besides miles of unnecessary travel during the season it has a tendency to irritate the bees; many attacks may be the direct result of this oversight.

It is very different with the straight row system, if the apiary is ideally laid out. Rows should be at least ten feet apart and hives should have about two feet between in the rows. When doing any beework during the season it is always one step from hive to hive; the operator is always on the same side (the right side of the hive), which makes all manipulations much more convenient; every hive is a seat for the next one and forms a shelf for his tools and at no time is it necessary to come anywhere near hive-entrances.

Our first lessons in geometry taught us that a straight line is the shortest distance between two points. Small and unimportant as this straight line business seems to be, it saves the beekeeper many unnecessary steps during the season. I apply this principle systematically to all my beework, and when extracting time comes around I reap special benefit from its application. In a straight line I take my wheelbarrow with comb baskets to the end of the row, and turning around I have again a straight line back to the honey-house, gathering up combs for the extractor from hive to hive.

When I stand in front of my three-hive winter case and compare the relative positions of the entrance of the three colonies when on their summer stands and in the winter cases, the bee-passages before and after packing are either in the same place or so nearly so, all being on the same level and in the same plane, that no drifting or confusion will occur when the change is made. Thus the three-colony single-row shed eliminates all necessity of shifting bees in the fall, as well as in the spring, which, to my mind, is an essential feature.

I do not use my hive-stands for the sheds, but they are stacked up and set on little blocks; they will last a life-time if lifted out of the ground in the fall and given a chance to dry during winter. A little repair where needed, a nail here and there, will greatly prolong their service. Some of my stands have been in use over thirty years and are yet in fairly good state of preservation.

La Salle, N. Y.

The word "drifting," used by Friend Greiner in the latter part of the foregoing article, indicates one of the greatest objections (for us) to the use of the quadruple case, or in fact to any case which requires the moving of the colonies together for packing, and we believe that this is one of the strong points in his method.

When colonies are moved together for winter and there is occasion for any of their bees to take flight, there is more or less confusion among them in recognizing the new locations. The result often is that the strong colonies, making more noise, attract the bees of the weaker ones who "drift" to the appeal. We have noticed this, years ago, and that is what dissuaded us from moving the hives at all. But we are inclined to think that perhaps our experience was exceptional. However, lately we have heard so much of colonies "drifting" and the weak ones losing bees to the profit of the powerful ones that we are strengthened in our dislike of moving colonies at all on their stands for winter. Friend Greiner's method avoids the moving, and drifting is not to be feared.—Editor.

---

# Beekeeping in Santo Domingo

By H. Brenner

NEARLY three months in Santo Domingo, I think I can give pretty accurate information about beekeeping conditions here and about land and people. A lady beekeeper in Sanchez made this season from 60 colonies 30 barrels (50 gallons each) of honey. Even now enough nectar is coming in that I could make strong colonies fill a super with honey. My work at present is queen rearing, getting the queens in the supers mated and starting new apiaries with the nuclei.

Sanchez is situated at the north end of a bay 30 miles long and 12 miles wide, northeast of the island. The bay is really the continuation of the river. On the south side of the bay we located and stocked already with nuclei four new apiaries on land owned by Dr. Maldonado. At the north side of the bay we bought four small pieces of land from five to ten acres each, to which I am bringing nuclei as soon as I have them ready. We also located places on the river as far as we can go up in a motor-boat. A railroad runs 31 miles from Sanchez to the interior, and the doctor secured places on it also for apiaries. This is about all in the vicinity of Sanchez. On the north coast the doctor owns considerable land. I went there once over the mountains and came through the towns or villages of Matanzas and Cubreras. On the way we crossed three good-sized rivers (one over a hundred yards wide) in log canoes, the animals swimming behind. In this locality we have 30 colonies in logs and have the hands instructed to buy as many more as they can get hold of. As soon as I have time I will go there, take two breeding queens along in two-frame nuclei, transfer these bees, brood and good comb, to 10-frame supers and start apiaries there as I am doing here now. The native bees are the worst to handle I have ever met with, but very fine cell builders. Five days ago I received from a friend in Porto Rico 13 queens of my stock in two-frame nuclei. The honey here, which I have examined, is lighter in color than the Porto Rican honey and of very good flavor. The country I have seen is thickly wooded or virgin forest and only here and there small patches in fruit and cacao, and very thickly populated. The people are good-natured and peaceful, but do not like to work, and this is one of my main difficulties. Nature produces most anything they need, so it is necessary to pet and coax them, if you want any help. With the rich and cheap land the island has, it is my opinion that as soon as settled times return the small 5 to 10-acre farmer will invade this island from the north, start farming with poultry, bees, dairy, etc., and gain prosperity in no time. If he knows something about mechanics and carpenter work, as we Texas farmers do, he will be almost independent and his independence secured. It is certainly amazing when I relate to my friends here the stories circulating in the States and even in Porto Rico about the unsafety of Santo Domingo and the wild and uncivilized population. On my trip to the north coast, which lasted 13 hours, the few people we met always saluted first and gave very polite information. In the few huts we saw and entered we had to rest and accept coffee and fruit. My friends told me that even in the revolutionary times they only cut each other's throats and did not harm the stranger who kept out of politics. We have direct mail and passenger service from New York to Sanchez twice or three times each month. To visit in the future the apiaries situated near the water we are going to use a small motor-moat, which the doctor has already ordered. I could narrate some very interesting incidents, which I had on my trip over the mountains and in crossing the flooded rivers and the trouble we had with the animals, especially the pack mules. On the water we once had a rough sea and had to return, bees and all, as the motor was flooded and did not work. For the next load I took a sailing boat and had better luck.

Sanchez, Santo Domingo.

## The Hubbard Feeder

HUBBARD Brothers, of Boyne Falls, Mich., seldom resort to feeding, since the shallow combs which they use over their comb-honey supers furnish a reserve supply of stores for every colony. However, in the best regulated apiary there will occasionally be a colony which for one reason or another must be fed. For this purpose they have devised a feeder which is attached to the back of the hive, as shown in the picture. An inch auger hole in the hive-body, which is opposite a similar hole in the feeder, gives the bees access to the syrup. The feeder has a metal cover which fits very tight and thus prevents rainwater from dripping in, or robbers from getting a taste. A piece of wire cloth, which slants across the feeder from top to bottom, enables the bees to get the last drop without danger of drowning.

THE HUBBARD FEEDER IS SAFE FROM ROBERS.

This feeder can be filled at any time without disturbing the bees, as it is not necessary to open the hive or interfere with the normal flight of the bees at the entrance.

## Strained Honey

By J. E. Crane

STRAINED honey! What memories cluster about these words! Again I see the old one-story wood-colored house, with its huge chimney and fireplace, where I was born and lived my childhood life, with father and mother, brothers and sisters. And back of the house the orchard, and the well, with its old-fashioned sweep for lifting the buckets of water from between the walls of stone. Near by was the bee-house, for no one thought of keeping bees, in those days, without a bee-house. This house was really a shed with one roof sloping to the north, and boarded up on the north side and open on the south side, so the sun warmed the bees in winter, causing many to fly out in cold weather and get lost, or making it so hot in summer as sometimes to melt down the combs. And then there were the long, golden autumn days and frosty nights. Then father would say it was time to "take up" the bees, for "the brood was all out of the combs." Mother and brothers and sisters were all interested as father melted some sulphur on a shovel by the kitchen fire and prepared some great "matches," as he called them. Then we went to the yard in front of the bee-house and with a spade cut out a hole in the ground ten or twelve inches square and ten inches deep, sticking three or four "matches" in the bottom. After much knocking or thumping on the hives to discover which were lightest and not likely to winter, the matches were lighted and the hives set over the burning sulphur one after another. How sorry I felt for the poor bees to be smothered in this way when they had done nothing to merit such a fate. Soon the hives father had decided to "take up" were all silent and taken to the large kitchen and the combs cut out; some of the whitest were saved for company and the rest piled into great wooden bowls for "strained honey." Later, when the little mother had time, a milk pan holding six or eight quarts was taken, two sticks laid across the top and another pan punched full of holes laid on the sticks, into which the combs of honey were placed after cutting them crosswise and lengthwise and every way, to drain for "strained honey." I can almost hear that honey today as it dripped into the empty pan. How good it looked as the lower pan slowly filled with the pure honey free from the dark comb. And once, I remember, when the little mother was out of the room, and I thought no one would see me, I helped myself. Surely "stolen waters are sweet and bread eaten in secret is pleasant," but did ever a morsel pass juvenile lips and taste more delicious than the scrap of wax besmeared and dripping with amber honey? As the honey ceased to drain the old combs were stirred and placed in the oven warm enough to melt the combs, and the golden wax ran over the honey. How wonderful it seemed in those far-away days! Yet how slow the process; but in those days we cut our grass with a scythe and our wheat with a sickle and threshed it with a flail. Today we have our mowers and reapers, our threshers and seeders, our autos and even our flying machines. But how about strained honey? We do not need to strain honey these days, someone will say, for we have the "extractor," a wonderful invention that has revolutionized beekeeping. Yes, we have the extractor, but there is yet much honey to strain or separate from the wax. There are the cappings, removed to make the combs ready for the extractor. Then we have more or less sections that get broken in handling or injured so as to be unfit to market, for accidents will happen in the best of families, as well as with beekeepers who have to depend on inexperienced help. And then there are more or less combs that are ill-shaped, or where the starters have fallen down. More or less may granulate before it is shipped to a distant market, or gets broken in transit. We recently had nearly a hundred cases sent us from the city that had been shipped in by different beekeepers; the most of it had to be strained, or the wax separated from the honey and got into shape to market. When we think of the large amount of cappings that will accumulate where the honey is extracted from several hundred hives, or even one hundred, the old way seems quite too slow, and we may find it to our advantage to have a box or a number of boxes three or four feet long by eighteen inches wide and ten or twelve inches deep with a galvanized wire cloth screen with one-fourth inch mesh nailed to the bottom, beneath which a metal bottom will conduct the dripping into a vessel below. Into such a box the cappings and broken or injured combs may be thrown, and, if it sets in a warm room and is stirred a few times, most of the honey will drain out and be in no way inferior to that which comes direct from the extractor. After a few days it will cease dripping, or nearly so; then they may be thrown into a barrel and the box again filled with cappings to drain, or they may be treated at once with a melter. As the little mother long ago treated the combs to a strong heat, strong enough to melt the wax, to get all the honey, so we must now treat the cappings and combs to heat sufficient to melt the wax if we would get it all. It is rather surprising how much honey remains in the cappings after the honey has ceased to drain out, probably twice the weight of the cappings. There are various ways of separating the last of the honey from the cappings, but I believe none so good as a melter designed especially for this purpose. I have recently had one made for my own use that suits me well. A pan of galvanized iron three feet long by eighteen inches wide and four inches deep is made. Into this an extra bottom is soldered, extending from one end to within four inches of the other end, where it turns up as high as the edges of the pan. This makes a water jacket one inch deep over the bottom of our pan with opening at one end for filling with water and escape of steam. Small holes are drilled through the end opposite the opening for the escape of the melted wax and honey. The pan is set in a wooden frame so the ends may be raised or lowered to suit our convenience. A small oil stove underneath gives necessary heat.

Middlebury, Vt.

---

## My Experience With Bees Shipped in Combless Packages

By John Kneser

Read at Wisconsin State Convention, December, 1917.

BRIEFLY I wish to give my experience in purchasing bees in combless packages.

When bees are purchased in this manner the orders should, of course, be placed early in the season, and in packages no smaller than at least two pounds; and it is further essential that they be received before fruit bloom. The purchasing of bees in combless packages, while not so advisable where purchasers have not hives and drawn combs, is recommended as being highly desirable and profitable, especially so in view of the present price of honey. In the event that purchasers have no hives or empty combs, it is advisable to buy the colonies outright.

When following the above suggestions, purchasers should secure bees from the South during the months of April and May, and under ordinary favorable conditions they can build up strong colonies, for the June and July flow.

There may be a prevailing opinion among some beekeepers that when purchasing bees from the South in combless packages there is a likelihood of their having foulbrood, and possibly, therefore, transmitting the disease to healthy bees. The opinions of overwhelming authorities are to the contrary; that foulbrood is not usually transmitted by purchasing bees as outlined.

About five or six years ago I tried the experiment by sending for different sizes of combless packages of bees with queens. I was well pleased with the results. Further, during the month of May, 1916, I received twelve two-pound packages with an untested queen in each package. These packages arrived in good condition and just in time for the clover flow, which commenced late in June. These bees produced more honey than the average of my other colonies. During the spring of 1917, because of conditions wholly beyond my control, the purchasing of combless bees was not very satisfactory, for the reason, first of all, that the bees arrived in poor condition, the loss being about 60 per cent. In addition to that several other factors entered into this unsuccessful venture: The congested condition under which they were expressed; exceedingly hot weather during shipment and during preparation for shipment; too great a proportion of old bees and inferior queens and virgins sent.

Although I had losses, nevertheless, taking the mean between the two, the profits realized are far more satisfactory than by any other method known to me.

Milwaukee, Wisconsin.

---

## Early Spring Suggestions

By Frank F. France.

MR. BEEKEEPER, what plans are you making for the coming season? It is now time to think over every detail necessary for the work of 1918. If you have a business system, your work will be a pleasure. It is a very good plan to take an inventory of everything, the number of colonies, the number of supers of good worker comb, extracting combs, extra frames with foundation, worker combs full of honey for spring feeding, number of extra bottoms and covers, and storage cans. How is the condition of your auto or truck? Does it need repairs or overhauling? If so, now is the time to have it done by your service station. It can be done cheaper and better at this time of the year than when the rush of the season is at hand.

Time is the most important factor today. Let every minute of your time count, just as every factor counts in this great war. Your new supplies should be all ready for the coming season. Clean up all surplus combs of excess wax and have them graded as to kind and quality, namely, drone and worker comb. The importance of extra combs in the spring, summer and fall means the same as money on interest and when filled with brood or honey they are forms of security bonds in readiness for your crop. All old, broken comb, cappings and scrapings send to the wax-rendering specialist. It will save you time, fuel and money.

What about your equipment; is it standard? Do you know that this war's greatest lesson is standardization? Not only does it apply to war supplies but to everything else. If you have all kinds of hives and frames of different sizes, you spend half the time fitting parts together. This is lack of standardization. Keep all parts of one size and make, so they be interchangeable. Make standardization one of your policies and you will be insured a good return for your investment. Standardization is also economy. It is simple, it is reliable, it is free of complications. If you have good standard hives of the same size and make it is also easier to control disease.

What will become of the business of the young beekeepers who are in the war or may go to it? Many have gone to the training camps, some to Europe and a great many more are on the draft list, not knowing whether they will or will not be exempted. The United States is going, sooner or later, to adopt a universal military training system whereby all young men physically able will be trained. If we beekeepers were a unit to help one another, it would be easy to find someone to care for the bees of the soldier boy, but now, if he cannot find a person, his business will be a total ruin. I may be one of the many thousands to join the colors, if not exempted, but I am, with the rest of the boys, ready to go at any time to help press out German militarism. The wartime appeal is to help Uncle Sam first and ourselves last.

I do not think many beekeepers understand the tin can situation. The price of cans will probably not be any greater than last fall, as the government, I am informed, has tin prices under control. It is the supply of cans that is limited, and whether we can get them at all will be the question. Also how long after we order them will the shipment arrive, since war freight is to have the right of way, so that all other freight not perishable will move slowly? Of course the transportation system depends largely on what will happen to the Kaiser this spring and summer. Our transportation system and our home power plants will largely need the motor truck, which may be the future means of carriage.

Platteville, Wis.

## Suggested New Antiseptic Treament for Bee Diseases

By W. J. Sheppard.

A NEW antiseptic known as "flavine" that has been found highly sucessful in the treatment of wounds and disease on the battlefields of Europe seems likely to be of benefit to beekeepers as a remedy for bee diseases. It is reported that experiments have been made with it in England during the past season in the case of a few colonies having Isle of Wight disease, and that it has effected a cure. If that is so, there would appear to be no reason why it should not be equally efficacious in the treatment of other bacterial diseases of bees, American foulbrood, European foulbrood and sacbrood. From enquiries made by the writer as to whether it had been actually tried as a remedy for foulbrood as well, he was informed that up to the present it had only been experimented with in one instance and that the result was satisfactory.

The difficulty hitherto experienced in treating bee diseases antiseptically has been that antiseptics powerful enough to destroy disease germs have, as a rule, been harmful to the bees, and generally highly injurious, or fatal, to the unsealed brood.

It is stated that the essential qualifications for an ideal antiseptic are that "it should be non-poisonous and non-irritant to any tissue of the body, harmless to the phagocytes (the white warrior cells of the blood), potent to kill disease germs in the presence of blood serum, and stimulating to repairing tissue." It is claimed that "flavine" comes nearer to this standard than any other antiseptic at present known.

For the treatment of bee diseases, if further tests prove its efficacy, it possesses several advantages that are obvious. It is inexpensive and easy of application. Five grammes, equaling 77 grains, costs only 32 cents. For the treatment of Isle of Wight disease in spring and summer one grain is dissolved in one quart of warm water and sprayed into the hive with an atomizer, so that the eggs, larvae, bees, combs, floor-board, etc., are thoroughly dampened. A second application is given after five days. If the weather prevents the opening of the hive, one pound of honey, or sugar, is dissolved in one pint of the fluid and fed rapidly, and followed by spraying when weather permits. For autumn treatment a stronger spray is recommended, consisting of one grain of flavine to 16 ounces of warm water to commence with. Also soft candy medicated with one grain of flavine to the pound. Probably similar treatment would be suitable for foulbrood and sacbrood.

It is said that it is safe to use combs over again that have been in contact with diseased colonies if they are sprayed with the fluid of the first mentioned strength by means of a mist sprayer of sufficient power so that it penetrates to the bottoms of the cells. The fluid has a greenish fluorescent tinge so that its penetration is easily perceptible. There are two preparations of "flavine," called acriflavine and proflavine, the former being slightly more expensive than the latter. Possibly this treatment will be given a trial next season at some of the experiment stations on this side of the water, as it seems to give great promise of good results.

Nelson, B. C.

## Advertising Honey

By Jay Smith.

AT the present time, honey is almost selling itself, but the time will come again when it will be necessary for the beekeeper to do some hustling if he expects to get rid of his honey at remunerative prices.

"It pays to advertise." Every one will tell you so, and it does, but it must be of the right sort. If a person is not careful in advertising he will find it an easy matter to lose money thereby.

One should sell his honey locally if possible, for not only can he get a better price but he will save the middleman's profit, freight charges, etc.

For a number of years I have bottled honey and sold it to the grocers. The average grocer will take a few bottles out of the case and set them on the shelf, but no one will know what it is. It may be jelly, apple butter or most anything as far as the purchaser can tell. Then many storekeepers are not salesmen and many of them employ cheap clerks, who are not salesmen. A customer comes into the store and the clerk says, "What will you have?" The customer tells him, buys it and goes out. The customer did not say, "I will have some honey, please," because he did not know that the storekeeper had honey for sale. In making my rounds to sell honey, a grocer frequently has said, "I have still on hand some that you sold me a year ago." He only bought one case the year before, and sold part of it when someone called for it, when the baby had the "croup."

I tried to get grocers to mention that they have honey, and when a customer comes in, ask if he wants some fine honey, but grocers have

HONEY MUST BE ATTRACTIVELY PACKED TO BOOST SALES.

hundreds of things to sell, and of course cannot go over the entire list.

I tried advertising in the daily papers, but found I could sink a lot of money in this way; the sales of honey from the groceries would not pay the advertising bill. It did not pay **me** to advertise this way.

Finally I hit upon a plan which has worked out so well that I give it here believing that many who live near the larger towns can use it to advantage, and the expense in advertising **is nothing.**

I go into a grocery store and say to the proprietor: "I have a honey proposition to make which I believe will interest you. If you can spare the use of your show window for a few days, I will put in a window display of fine extracted honey in jars of various sizes. I am not going to ask you to buy any honey. Simply place this display in your window with the prices marked on the different size bottles, watch the people stop, look at it and then come in and buy. After the display has been here as long as you wish to keep it, I will take the honey away and you can pay for what has been sold and as much more as you want to keep on hand."

The grocer usually says there is no use trying to sell the larger packages, the half-gallon and the gallon sizes. The ten-cent and twenty-cent sizes are as big as he can sell. In making this deal, however, I never contradict the grocer, for he naturally feels he knows far more about his business than I do, so I say, "That is true, but the gallon and the half-gallon make such an attractive display. They will help sell the smaller sizes." I know well enough, however, that the reason the larger ones have not sold is because people do not **see** them. Let people once get sight of the beautiful extracted honey and many of them will want a gallon.

The grocer always accepts this proposition because he is not asked to put any money into it that he is not sure of getting back at once. He has nothing to lose, no risk to take, and a new window display is always an attraction, so I am allowed to arrange a display similar to the one shown in the photograph.

People who come by the window stop and look at the display. Many come in and buy. Children look a long time at it and then go home to begin work on their mothers to get some of "that honey."

I first tried this at one of the largest groceries in the city, a dealer in fancy groceries. When I came to remove the display there was not much left to remove. He sold more honey in that week than he had sold in a year before. I put a display in a number of other stores soon after, with the same results. The honey sold like hot cakes.

One grocer has said, "You can put in the display if you want to, but do not expect too much. We have never sold extracted honey here. We can sell comb honey all right, but not the strained." I put in the display and it worked just as I knew it would, but it surprised the grocer. He left it in his window three weeks and I had to fill it in several times as the stock sold out.

I always explain to the grocers that after the display has been in the window and people know they can get honey there, it will build up for them a permanent demand for honey. This has proved to be true.

This scheme is the best of anything I have ever tried. If the producer has on hand plenty of honey, he may better have it in the show window advertising itself than to have it stored away in his honey-house.

Vincennes, Indiana.

## Woman's Work in Food Conservation

By Mary G. Phillips.

It is true that at last the woman in the kitchen has come into her own. For years our families have come to the table three times a day, have eaten with relish the good meals there, and have gone away without once thinking that in half an hour they have demolished what it took hours to plan, prepare and cook. Three bountiful meals have been taken for granted like sunshine and air, but now, at last, we are confronted with a new idea. We have suddenly waked to the fact that the health of the family depends absolutely upon the woman who plans what we shall eat, and prepares and cooks it. If you look around among your friends you will see that the children in one family are strong, vigorous and energetic, while those in another are weak, thin and unambitious. It may be that the mother, although a "good provider," has not for years given the children the food they need for proper growth and strength. I know of a family where the youngsters are given no milk (a most important food for children), and the chief meat is pork, a food exceedingly difficult for youthful stomachs to digest. No wonder that these boys and girls are undersized —they are undernourished.

Now, we housekeepers of today are not only recognized as the keepers of the family health, but we have a bigger responsibility even than that. We must keep our families healthy at home at the same time that we are sending all the food possible abroad. We are to help win the war! Isn't it a splendid feeling to know that we are a part of the United States army of women in a great drive **every day,** winning the war? "There is no magic way to make food win the war," says Mr. Hoover, "it can be done in but one way, the way of voluntary and eager resolution and action of the whole people in every shop and every kitchen and at every table in the land." Our trenches are our kitchens, our weapons the market basket and saucepan, and our ally cornmeal, but our victories are as real as though we flourished bayonets. So arm yourselves, housewives, and let us do our whole duty to our families and our country!

Of course every beekeeper is bending his energies toward the production of a maximum crop in 1918—that is part of his patriotic duty. The beekeeper's wife has her patriotic obligation, and I wish that the things which comprise her whole duty might be painted on every kitchen wall:

1. Keep the family well by the wise use of the right foods.
2. Save food for others by using less wheat, meat and sugar.
3. Waste nothing.
4. Prepare and cook food with thought and care.

The object of this article is to help the families of beekeepers to do these things and it should not be forgotten that every member of the family can help—it does not depend alone upon the mother, who does the planning and cooking. For instance, if Mother decides to have carrots for dinner and Father refuses to eat them, declaring they are nothing but rabbit food, he is hindering Mother's work and doing an unpatriotic act. What difference does it make whether he likes carrots or not? He can learn to eat them and be that much better off. Children can do their part by following the gospel of the clean plate, and they will, if they have been trained to like all wholesome foods. It is often difficult in after life to overcome food prejudices formed in youth, and now that we have an incentive by appealing to a child's patriotism, it will be possible to help them to form good food habits.

The need is immediate, and so urgent that we should set about our task now, not relaxing one day until the time comes when people are not starving by hundreds and thousands while we have plenty. Professor Jager, that splendid beeman of Minnesota, came back from Servia recently, and the stories he told of the hungry people there make one ashamed to use wheat, and more ashamed to grumble over having to use cornmeal. Just imagine, if you can, having nothing to eat for three years but a piece of bread daily as big as your fist, with a red pepper; bread so black and gritty that the teeth that bite on it become worn down to the gums. That is what thousands of Serbs are living on while we feel it a hardship to have one wheatless day a week! The workers in the Food Administration realize so fully that the saving of lives and the winning of the war can be accomplished by limiting our use of wheat, that one man there has insisted upon his family foregoing the use of wheat entirely, that there may be more for others. But after all, that man's sacrifice and his entire work of the Food Administration will go for naught, as will the work of all the missions helping to carry food abroad, unless we housewives do our utmost to co-operate. We must take hold of the food problem as we find it in the homes which we manage, and that means that we have three things to study—our families, to find out what they need; our source of supply, to find out what we may use, and government publications, which will give us light on both. Aside from government bulletins, there is a mass of literature flooding the country today, which should be used cautiously, common sense dictating what to assimilate and what to disregard. Too frequently such literature is put tobether hastily by inexperienced "'food experts,' **and this is no time for experiments.** Food, we know, is scarce, and experiments often costly, therefore tried and tested methods that you know, are the best to use, unless you are sure of your source of information. Above all, let us use common sense. Here, for example, is a paper containing recipes for meat substitutes. In one wheat is used, elaborate preparation is necessary, and two hours' cooking is required, therefore much fuel. That sort of thing our common sense teaches us not to try, a good general rule being to have simple meals which require the least time in preparation, the least fuel to cook, and the least use of meat, wheat and sugar, yet conforming to the family needs.

Most of us are willing and earnest in our efforts toward food conservation, but the difficult part is to keep up the effort day after day. It is easy to plan a meatless day and a wheatless day for a few weeks, but the strain comes when, without hope of receiving medals of honor, we have it to do week after week. The men in the trenches are relieved every few days and go behind the lines for rest. Our part is to keep on the firing line until the war is over. All honor to the housewife who does it cheerfully and gladly!

Washington, D. C.

---

# My Neighbor's Garden

By C. D. Stuart.

STRAIGHT from the neighborhood of her garden flew my bees. I listened to catch some message from her in their gossipy murmurings, even as whiffs of fragrance, from magic-carpeted fields just beyond, came to me on the pinions of a brisk March wind. I could close my eyes and see that absurd little garden with its young gardener—my neighbor's daughter, and the apple of his eye—fussing over the one rose bush I myself had given to her, as Mother Eve might have tended the first infant in the world.

But all my mental tiptoeing failed to bring the message.

"We must be about our queen's business," those busy honey-gatherers ruled, thus cleverly passing back to me the problem of bridging the hostile trenches of parental jurisdiction.

One spinster bee, rather brazenly, I thought, dragged into a hive two bulging suit cases the color of new tan shoes. One could see at a glance that they had been stolen from a poppy field and that they had been tightly packed with crystals from the hearts of the poppies. I know the very place. In one corner of the field stands a live oak. There the young gardener and I met (quite by accident) and had worshipped the "land of fire" as the Spanish mariners who sailed up and down the coast in the early days, described the "flame" of Eschcholtzia Californica.

Of course, the bees do not mention the California poppy in botanical terms. Even the gardener feels more at home with its everyday name. But as that spinster bee, together with other spinsters, continued to drag into the hive other spick and span bulging suit cases, one could distinctly overhear in their excited humming, unanimous approval of the poppy, which only a poet may interpret.

WHITE OR FIELD MUSTARD. Sometimes called "Wild Turnip." (Photographed by John R. Douglass).

" . . . Not all proud Seeba's queenly offerings
Could match the golden marvel of thy bloom . . .
Brimmed with the golden vintage of the sun."

Other spinsters, more decorous, with nectar hidden from public view, were drowsily chanting of the lupine intermingled with the poppies—"snowy and amethystine in seas of red bloom."

But only the gardener knows the intimate history of our flower which is kith and kin to that other flower whose essence has enslaved an entire nation, although she claims that our poppy has never been guilty of a greater offense than giving the Indian a few hours of happy forgetfulness, or, possibly, raising the hopes of certain elderly Spanish Californians who were wont to put their faith in a hair-restorer distilled from it.

It is clear, then, that bees, like other specialists, are limited by their occupations, as flowers appear to mean only nectar and pollen to them. On the other hand, the young gardener's fund of half--forgotten lore concerning all growing things, apparently is inexhaustible.

"The mustard's in bloom!" she had exclaimed only a few days before.

I smiled indulgently and looked in the direction of her gaze. Sure enough, a yellow haze was just beginning to tinge the orchards.

"The kind one buys with a ham sandwich?" I teased.

"Sandwich mustard grows taller and blooms much later," she corrected, and at once took my education firmly in hand.

"What's the difference?" I demanded. "Smells the same."

She broke off a piece and held it up to me. It had a brittle, reedy stalk and smooth, pale leaves. "Field or white mustard," she called it, and added, "Some know it as wild turnip."

"Then what's this?" I triumphantly held up to her a plant with rough, hairy leaves, but with the same pale yellow flowers.

"Migra, or black mustard," she

ESCHOLTZIA CALIFORNICA
"On hills and plains, lifting, exultant, every kingly cup."

promptly retorted, and informed me that it was much used by our pioneer grandmothers as early "greens," and that in a similar manner the native Indians, long before pioneer days, had used the herbage of the California poppy.

But that is not all my young gardener knows. I say **my** gardener, for I am resolved that no other shall ever invade the walled garden of my bachelor heart. She has seen the poppies unfold, and laughed at the red-winged blackbird plunging down into the feathery depths of the mustard's lace-like foliage, or tilting about on the slender stems. She has watched the fields of pale green change into a magic carpet of "golden dust," as the flowers opened in the spring sunshine. She knows that but for the amber liquid distilled from those blossoms, young bees hatching in March would often go hungry to bed, or more probably would never hatch at all. Numbers of spinsters, the coveted liquid concealed on their persons, were, at that very moment, hurrying from her father's orchard back to the nursery.

Still another thing she knows. That wise little gardener is perfectly aware that they are my bees. We had once stolen out and watched the invaders taking their buccaneering way across the valley, plundered flowers swooning in their wake. I wondered if she ever watched my bees now. If only I could be certain! But why not find out? Surely one has the right to follow one's own property!

So I followed my bees, quickly, lest I should falter in traversing the intervening mile to the poppies, then on a little further to the mustard.

And there, knee-deep, in that magic carpet of inextricable fragrant network, stood my gardner—my magic girl with erect golden head matching the pale yellow flowers that filled her arms, waiting for the magic words she wished me to speak and that I had only been waiting the courage to pour into her small pink ear to perfect the magic of that wonderful spring day.

All around us hummed my bees. But we remained unobserved. Romance like ours is not for the Marthas of beedom. Los Gatos, Calif.

# The Nutrition of the Honeybee

By R. Adams Dutcher

Division of Agricultural Biochemistry, University of Minnesota.

If you had gone to the average biologist a few years ago and asked him the question "'What are the facts regarding the nutrition of the honeybee" the chances are ten to one that he would have answered, "That is a chemical question; I am interested in the biological field and cannot answer your question." Had you then sought an answer to the same question from the chemist of that day he probably would have answered, "I am not acquainted with the anatomy and physiology of insects and it is a question upon which I have no knowledge. I am a chemist, not a biologist."

This viewpoint is fast disappearing, for, through the development of biological chemistry during the past few years the chemist is becoming more thoroughly a biologist and the biologist is becoming better versed in the fundamental sciences.

Our knowledge regarding the food of the honeybee and its functions is relatively meagre; in the short time allotted for this paper I shall merely indicate a few facts regarding our present knowledge of nutrition as applied to the higher animals and bring to your attention a few facts which may be of importance in the development of the honeybee.

Chemical analysis shows all living organisms to be composed of complex chemical substances which are being continuously broken down and rebuilt during the life of the organism. In order that the organism may best perform its natural functions it is necessary that the right kind of chemical materials be furnished in correct proportions and in sufficient quantity. The food is the source of these chemical materials.

The chemical substances which are present in the food materials of higher animals and which must be present for normal growth and development are (1-) the protein, (2) the fats, (3) the carbohydrates, (4) mineral salts, and (5) growth-stimulating substances sometimes known as vitamines.

### The Proteins

This class of chemical compounds is characterized by a large proportion of nitrogen, which is valuable in building of muscle, nervous tissue, bone, cartilage, hair, and in the case of insects, the hard, shell-like coat to which the softer tissues are attached. In Table I will be found a list of the important foods used by man and domestic animals in which the content of protein is expressed in per cent.

**Table I—Protein Content of Some Common Foods**

| Human Foods— | Per cent. |
|---|---|
| Meat | 16.00 to 20.00 |
| Eggs | 12.00 to 13.00 |
| Cheese | 24.00 to 26.00 |
| Wheat | 10.70 to 13.30 |
| Rice | 7.00 to 8.00 |
| Potatoes | 1.80 to 2.20 |
| Milk | 2.00 to 6.00 |
| Stock Foods— | |
| Alfalfa Hay | 14.00 to 18.00 |
| Cottonseed Meal | 40.00 to 42.00 |
| Wheat Bran | 14.00 to 16.00 |
| Timothy Hay | 2.50 to 3.50 |
| Soy Beans | 34.00 to 35.00 |
| Bee Foods— | |
| Pollen | 17.00 to 27.00 |
| Honey | 0.10 to 0.50 |

### The Fats

These chemical substances function in the animal body as fuel materials, furnishing heat and energy. The typical fats used as human food are butter, lard, oleomargarine and the vegetable oils. It will be noted that the foods listed in Table II contain relatively small quantities of fat. This is not of great importance, for the animal is capable of manufacturing fats from carbohydrates.

**Table II—Fat Content of Foods and Feeds**

| | Per cent |
|---|---|
| Milk | 1.60 to 6.60 |
| Beef | 8.00 to 20.00 |
| Fruits | 0.20 to 1.50 |
| Vegetables | 0.10 to 0.70 |
| Cereals | 1.00 to 7.00 |

### The Carbohydrates

This class of chemical substances also serves as fuel material in the animal body. The sugars, starches and gums are the most valuable carbohydrates and are found in the following foods:

**Table III—Carbohydrate Content of Foods**

| | Per cent |
|---|---|
| Fruits | 6.00 to 25.00 |
| Vegetables | 5.00 to 28.00 |
| Corn Starch | 89.00 to 91.00 |

A CALIFORNIA POPPY FIELD.

| | |
|---|---|
| Cereals | 65.00 to 78.00 |
| Sugar (cane) | 100.00 |
| Maple Sugar | 92.00 to 93.00 |
| Honey | 75.00 to 81.00 |

### The Mineral Salts

In order to obtain the mineral elements necessary for normal life processes, the animal must receive a varied diet, for many foods are actually deficient in mineral matter. The mineral content of some common foods is given in Table IV.

**Table IV—Mineral Content of Foods and Feeds**

| | Per cent |
|---|---|
| Corn | 1.50 |
| Starch | 0.30 |
| Sugar | None |
| Wheat | 1.80 |
| Wheat Flour | 0.60 |
| Rice Hulls | 18.00<br>(96% is silica) |
| Oil Meals | 5.00 to 8.00 |
| Alfalfa Hay | 7.40 |
| Honey | 0.18 |

### Vitamines or Accessory Food Substances

In the last few years it has been found that certain food mixtures which contain sufficient quantities of protein, fat, carbohydrate and mineral matter, will not permit an animal to grow well unless certain chemical compounds are present. The nature of these substances is still unknown, but it has been found that such foods as butter fat, egg fat, milk, vegetables, fruits and certain grains contain these mysterious substances in relatively large amounts.

### The Food of the Honeybee

In general, there are two types of food utilized by the honeybee, honey and pollen. Honey is manufactured by the bee from floral nectar and honeydew, the former being the more important from the commercial standpoint. The amount of nectar produced by the single flowers is very small and has led to much speculation regarding the number of flowers necessary to produce one pound of honey. The evidence would indicate that 50,000 to 1,000,000 flowers are required for this purpose.

Some of the older scientists studied the amount of honey carried by a single bee and concluded that a bee would have to make 2,500,000 trips to produce a pound of honey. Mr. Dadant has called my attention to the fact that this figure is much too high. He is of the opinion that a bee does not require more than 25,000 trips to accomplish this result, and this is in agreement with statements in ABC and XYZ of Beekeeping. According to the figures of Collin submitted by Mr. Dadant, the number of trips should be about 26,700; but this is assuming that the bee is carrying the concentrated honey. Analyses of floral nectars show the per cent of water to vary from that of honey (17 per cent) to more than 80 per cent. If the nectar contained 76 per cent of water, as indicated in Table V, the number of trips necessary to produce a pound of honey would be 3.46 times 26,700, or 92,382 trips. It is therefore safe to say that the bee will average (in round numbers) about 60,000 trips to produce a pound of honey.

Analyses of nectars from two different sources are given in Table V.

**Table V.**

| Nectar. | Water. | Invert Sugar. | Cane Sugar. | Ash, Etc. |
|---|---|---|---|---|
| Hoya Carnosa | 59.23 | 4.99 | 35.65 | 0.11 |
| Honey Suckle | 76.00 | 9.00 | 12.00 | 3.00 |

Table VI shows the total sugar content in Sainfoin nectar and the resulting honey.

**Table VI.**

| | Cane Sugar. | Invert Sugar. |
|---|---|---|
| Sainfoin Nectar | 57.20 | 42.80 |
| Sainfoin Honey | 8.20 | 91.80 |

There are two important changes which must take place before the nectar may be termed honey. First, the water content must be lowered by evaporation, and, Second (as shown in Table VI), the cane sugar must be broken down to the two simple sugars, glucose and fructose. This mixture of simple sugars is commonly known as invert sugar, or reducing sugar. The changing of sucrose or cane sugar to invert sugar is brought about by enzymes or ferments in the body of the bee.

(To be concluded in our next issue.)

---

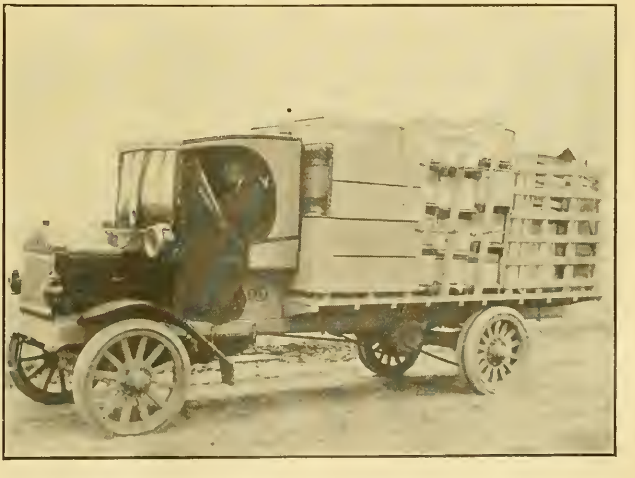
## Moving Bees

SEASONS like 1917, when but a few miles difference in location determined whether the crop was good or a failure, demonstrate very forcibly the importance of being prepared to move an apiary on short notice. To the beekeeper who is fully equipped, moving is not a serious matter, provided he has a suitable location to which he may go.

The replacing of the horse by the automobile has removed the most serious element of danger. Nine in every ten cases of misfortune in moving bees have been caused by the bees stinging the horses. If the hives get broken open on an auto, there is no trouble because of the necessity of unhitching frightened horses.

While in cases of long moves, it is necessary to use a freight car, most of the apiaries nowadays are moved by means of autos. A distance of fifty to a hundred miles can be covered at a less cost by motor truck than by freight, with a saving of time and with less injury to the bees. If the bees are to go into a car, it is necessary to haul them to the car, and again on unloading to haul them to the apiary site, so that they must be handled much oftener.

It is rather a simple matter to move an apiary by auto. However, two things must be looked after carefully, ventilation to prevent possible smothering of the bees, and protection from the effect of jarring, which might break the combs or throw them together in such a way as to crush the bees. To make sure of proper ventilation, every apiary should be provided with a sufficient number of moving screens for one load of hives. The moving screen is made of a shallow frame about an inch and a half in depth, just the size of the top of the hive, covered with wire netting the same as used for fly screens. In moving, the top is removed from the hive and the screen put on its place and fastened with staples made for the purpose. With the entire top open, and a clustering space an inch or more in depth, there is little danger of smothering except in extremely hot weather. At such times it may be desirable to put a similar screen on the bottom of the hive in place of the regular bottom-board, and leave a small space between the hive and the bed of the auto. Strips should be across the hives before a second tier is piled on them, to provide for a sufficient circulation of air. Piled up in this way, the bees can be moved on a hot day with little dan-



AN APIARY THAT WAS MOVED FIFTY MILES BY OUR STAFF CORRESPONDENT WITHOUT LOSING A COLONY OR BREAKING A COMB.

ger, since there is a current of air as soon as the car is on the move.

A still better and safer plan, when the bees are to be handled by people who may not be aware of the danger of smothering them or of tearing the screen and allowing them to escape and perhaps cause accidents, is to nail over the screen, at each end, strips an inch in width and thickness, and over these strips nail a board which will thus protect the screen and also shade the bees from the direct rays of the sun, in case the hive was exposed to them at any time. The ventilation then comes over the screen from both sides. A similar protection may be used at the bottom. There is then no danger of the bees being smothered by the too close piling of the hives on one another.

After trying various plans of fastening the frames to prevent jarring, the writer prefers the use of paper, as suggested by J. L. Byer, of Canada. Where the Hoffman self-spacing frames are used, it is an easy matter to move, since the frames will be sufficiently rigid without special preparation. Loose hanging frames would very quickly be loosened by the motion, and disaster would attend the moving if they were left unfastened. If a pile of old newspapers is handy, one can prepare a hive in a very few minutes by crushing a small roll of paper into the spaces between the tops of the frames. It is surprising how solid they will be if paper is placed between the frames at each end, and how nicely they will take a long journey. The apiary shown on the big truck in the illustration was moved fifty miles, without the loss of a single colony or damage to a single comb.

In loading the hives on the truck, the frames should be placed crosswise of the car, as the jar will be from sidewise motion. In loading a freight car the frames should run endwise of the car, since the jar will come from bumping the cars from the ends.

If one has new hives and good moving screens, it is a simple matter to close up the hives in preparation for moving. If the hives are old and the screens do not fit well, newspapers come into play to close up all holes, and serve the purpose admirably. It is well to put on all moving screens the afternoon before the bees are to be moved, and leave the entrances of the hives open as usual. After the bees have stopped flying at night, the entrances can be closed, and the bees will be ready for an early start the following morning.

When releasing bees in a new spot, it is very important that they should realize the change of location, so they may reconnoiter, in a manner similar to the first flight of the young bees, and learn the location of their new abode. When they have been transported long distances they realize the unnatural conditions and make the usual circles about the entrance. But if carried only a short distance with much care, and if they have been set down upon their new stand at night, some of them may, the next day, take flight without looking behind. To avoid this we use a slanting board or some other obstruction in front of the entrance, so that they may at once notice that things are not as they were. After the first flight there will be no danger.

---

# Efficiency in Beekeeping

By Morley Pettit.

THERE is a word to conjure by in production. It nearly won the war for Germany; humanly speaking, it will win the war for the Allies. That word is **Efficiency.**

The idea has revolutionized manufacturing and business. It is now revolutionizing beekeeping. What is it?

A negro went to the bush for wood. He stopped his mule-wagon ten feet from the pile while he loaded it, walking back and forth. When he had enough in the box for his old woman to get dinner, he drove home. That was not efficiency. To drive close and eliminate carrying, to load well and avoid extra trips would be a step in that direction.

Every task requires certain operations and each operation certain motions. To study to reduce the number of operations and of motions, thus saving time and energy, is the mechanical side of efficiency. Every thoughtful beekeeper is doing it more or less. He calls the result "short cuts." Sometimes they are not the surest way home.

Carried to its extreme, efficiency makes machines of men. Repeating the same operation day after day and week after week destroys constructive thought and separates the daily task from the joy-of-doing which should accompany it. In beekeeping this cannot be. Seasonal changes make it impossible. Varying conditions make even good system difficult, but all the more desirable. Systematically performed, the daily tasks of beekeeping become a joy of constructive thought and of purposes accomplished. Even when seasonable conditions spoil results, plans and preparations immediately go forward to "next year," when better returns are expected.

At its worst, commercial beekeeping is a series of little pottering jobs done to scores or hundreds of colonies. At its best, it is a system by which each colony is intelligently given necessary attention at regular intervals being determined by the beekeeper's judgment of seasonal weather and colony conditions. The beekeeping expert is the doctor and each colony is a patient. The doctor must have his science and his system and then vary the application of them to individual needs. He may employ several pairs of unskilled hands in the process, to lift and fetch and carry, but **his** part cannot be well done by rule or proxy.

In other words, beekeeping efficiency is very different from mechanical efficiency. Very few operations in the actual care of bees have been successfully standardized or reduced to rule of thumb. That is where the novice fails when he reads how Mr. —— does so and so. He tries to do likewise, misses important points which Mr. —— probably observed unconsciously and failed to record, and mentally charges Mr.—— with incompetency. The real reason for his failure might be charged to lack of experience. It might also be charged to lack of analysis and proper expression on the part of Mr. ——.

When beekeepers learn "experience" instead of, or experience with, methods, they learn to judge the methods of others and to devise methods which will suit their own conditions best. They also learn to vary from colony to colony and from day to day, yes, and from season to season, the application of their standard methods according to conditions which are found to exist.

This "experience" is known to be of paramount importance, and according to tradition, is to be had only after many years of unprofitable labor, by allowing a very small apiary to grow only as experience grows. However that may be, it is the fundamental knowledge on which all successful beekeeping practice is based. Not many who have obtained it by the laborious process are able to reduce it to language. They are like the old cook who was asked for the recipe of a certain delicious cake she made. "Wall, Honey," she said, "if you-all put in the things that I put in, and mix them the way I mix them, you'll have as good cakes as I make." They attempt to convey their experience in terms of methods and appliances, and they succeed to a limited extent in the hearing of other experienced beekeepers.

If all the experience or knowledge of bees and the conditions related to their "keeping" now in the minds, mostly subconsciously, of successful beekeepers were reduced to language abstracted from unimportant details of multifarious methods, if this were published and every honey producer led to read and digest it, the development of the industry would be phenomenal.

Let me put this in another way. Beekeeping is keeping bees—delicate insects, extremely complex organisms, highly sensitive to stimuli such as light, temperature, humidity, electricity, vibration, air currents, odors —to a thousand phases of environment not named or not determined. Their activities are subject to these and to numerous physiological and colony conditions which multiply variations of behavior and complicate control.

Man has not learned to change appreciably bee-nature by breeding. The multitude of individuals and the brief life-span of each precludes any attempt at training bees, were such a thing possible. In common parlance my bees do not "get to know me." I try to know something about them. The extent of my knowledge of them limits my success in "keeping" them.

Efficiency in beekeeping, then, falls under two heads: on the one hand a knowledge of bee-nature, with the means of preventing undesirable behavior, such as swarming or dying in winter, and of promoting behavior which is to be desired; on the other hand, the simplifying of these "means" so as to obtain the best results with the least expenditure of time and energy.

I have said that methods of bee management cannot be standardized. I will say now that they **must** be standardized. Before the busy season opens I must have definite plans as to how I am going to proceed to control or prevent every phase of undesirable behavior, and to promote all bee behavior which is to be desired. That every colony may have its fair share of attention the days for visiting each apiary at regular intervals must be arranged **by the calendar** well in advance. Even internal conditions which may be found in various colonies on different periodical examinations may be classified and the treatment each shall receive determined. It is true that these conditions will shade off into one another and that their treatment will depend on conditions and trends of the season; but the previously thought out plans will be a guide, though not a rule, of action.

Efficiency in a seasonal occupation like beekeeping makes the most of each season in turn. In the swarming season, for instance, swarm-prevention has the pre-eminence. I have no time to extract during a northern clover flow. If I spent half my time extracting then I would know that with an adequate supply of supers I might manage almost twice as many bees with a chance of doubling my crop. I would be sure that tiering up would improve my honey, besides distributing the labor. A study of the average beekeeper's season would show that much of the work of his busy time could be done before and after.

Efficiency seeks definite knowledge and mastery of the situation. I can learn to judge of colony conditions to a limited extent by studying the flight of bees at the entrance. But diagnosis is uncertain, leading to haphazard methods or a wholesale application of radical treatment, both of which are undesirable. A thorough examination of each colony at stated intervals gives individual attention and provides the occasion for all the manipulations necessary for securing a crop and leaving each in the best condition for winter.

Hives, buildings and appliances are tools used in the production of honey. They are as important as the tools used in the factory or on the farm. Hives deserve special consideration because bees use them as well as men.

Georgetown, Ontario.

## BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Racing the Stingers

While speaking of stings I want to tell an adventure I had several summers ago, no repetition of which is desired. It was at a time when the main honey flows in this vicinity were over and there would be a period of three to four weeks with nothing doing until goldenrod and asters came into bloom.

So I conceived the idea of taking one hive to a location six miles away beside a large pond surrounded with clethra, commonly known as white alder or pepper bush.

This bush secretes a large amount of nectar, of which the bees are very fond, and was just starting to bloom.

So I closed the entrance of a hive tight and secure, as I thought, hoisted it into the back of a buggy and started off alone. I had gone about a quarter of a mile when I felt a sting on the back of my neck. Leaning back, what was my horror to see the bees tumbling out through a small opening in the entrance, which must have been made by something joggling loose as we drove along.

I tried my best to throw a light laprobe over the hive, but by that time the bees were beginning to get acquainted with the horse, with the result that I had to devote my attention to the reins. I couldn't stop to take out the hive because it was only by galloping the horse that the bees could be kept at all at bay.

Even at that, they hurled themselves like little javelins at us. Afterward thirty-eight stings were counted on the back of my neck!

I knew if I slowed up they were likely to get the upper hand and perhaps sting us both to death. So on we went, finally swinging round a circle in a neighbor's yard and heading for home. Luckily a man was beside the roadside pump in front of the stable, and it took only a jiffy to throw a blanket over the now crazy, plunging horse, unharness and rush him into the stable and shut everything up.

Those bees continued to rage riotously all morning, issuing from the hive in streams.

Later I managed, all bundled up in coats, bloomers and gloves, to get them back to their old stand.

It was a more fortunate ending than I deserved for such carelessness, but at any rate I learned from that experience that to be a successful beekeeper you must not just **think** things are right—you must **know** they are!

JOSEPHINE MORSE,
In Country Gentleman.

### Honey Gingerbread

½ cup sour milk.
1 cup extracted honey.
1½ teaspoons soda.
1 level tablespoonful ginger.
½cup lard or fats.
2 eggs well beaten.

Flour to make thin batter. Mix soda with sour milk and add rest as listed. Bake in moderate oven 45 to 60 minutes, in shallow pan.

If when making light bread, by omitting lard and sugar and using the same amount of honey, you will find a great improvement in flavor.

MRS. MARY KING.

### Nourishment in Honey

(Mary A. Porter, in "Good Health.")

In early times, until cane sugar was introduced from the tropics, honey was the most common sweet substance available for food in the temperate zone. Before beekeeping gave a better and more economical supply, the wild honey found in rock crevices and in old trees was highly prized. Wild honey is still gathered in some countries, and in Peru it is an important export. Floral or normal honey is made from nectar, a sweet liquid secreted by flowers. The flavor and aroma of the honey depend upon the blossoms from which the bees extract the nectar. Each flower secretes its own combination of oils and substances, which give the blossoms their special fragrance. This peculiar flavor is detected in the honey—clover, buckwheat, fruit blossoms, etc. There is a choice variety of French honey from Narbonne which has the flavor of wild thyme and other mints. In districts where oranges grow, we get an orange blossom honey.

It is the custom of dealers to mix several honeys in order to produce a blend that is usually more satisfactory than an unmixed honey of pronounced flavor.

Honey extracted from the comb is easily adulterated, but the pure food legislation has made such adulteration dangerous and unprofitable, and for this reason the strained honey on the market is largely pure.

Like most foods, honey varies more or less from its average composition. The syrup contains about four parts sugar to one of water. There are several kinds of sugars present in honey, for the most part grape sugar and fruit sugar.

Honey also contains a small amount of magnesia, lime, phosphoric acid, iron and protein; ;however, the sugar so largely predominates that the food value of the other ingredients need not be considered.

In choosing honey, too much importance should not be attached to lightness of color, for some of the best varieties are dark.

### How to Keep It

Honey should be kept in a dry place in the house, otherwise it is likely to absorb moisture and spoil.

It should not be kept in a cold place, and never in the refrigerator.

The chemical change effected by the bee in the sugars of the nectar is the same as that produced by digestive ferments. The honey sugar has, therefore, undergone the first stage of digestion. It is because of this predigestion that honey is more wholesome than cane sugar. Eating too much honey will upset digestion, but not so soon as when too much ordinary sugar is eaten. Too much of either should, of course, be avoided.

Whether strained honey or comb honey is eaten, is a matter of choice. For those with delicate digestion, the particles of wax in comb honey may cause trouble, but for normal persons such small bits of wax as may be swallowed are as harmless as are the particles of indigestible material in many other foods.

Honey has a mildly laxative effect. Bran biscuits made with honey are more laxative than the ordinary bran biscuit. Older writers have claimed medicinal properties for honey, but this is largely a matter of tradition. Honey is a food and not a medicine. It is worthy of much more extended use, especially in cooking, because of its agreeable and economical features as well as because of its wholesomeness.

The simplest way of using honey is to serve it like jam or syrup with bread, breakfast cereals, rice, pancakes and other mild-flavored foods. When used on bread, an ounce of honey spreads as many slices as an ounce of jam. When it is to be used as a syrup on cakes, etc., if diluted with a little hot water, it is less sweet and also easier to pour.

Honey can be satisfactorily used for sweetening lemonade and other fruit drinks. Syrup of any kind is more convenient for this purpose than undissolved sugar. Honey can be used in place of sugar for some kinds of preserving, and fruits cooked in it keep very well, indeed.

### With Currants

Currants cooked in honey served with cream cheese and crackers or bread make a delicious lunch dish that is also very nutritious. Honey may be substituted for molasses in cookery, as it is slightly acid. It can be used in place of molasses in all kinds of breads, muffins and cakes, and it makes a more delicately flavored product.

A cupful of honey will sweeten a dish just about the same as a cupful of sugar. As there is about one-fourth of a cupful of water in a cup of honey, one should use one-fourth less liquid than the recipe calls for when using honey in place of sugar. No special honey recipes are necessary for making cake, as the substitution of honey for sugar is all that is necessary. And honey used in the place of sugar keeps the cake moist longer. A honey cake made with butter will keep its quality until the butter grows rancid, while one made without butter will keep fresh for months and even improve its flavor. What is true of the cakes, is also true of the dough; it can be kept almost indefinitely.

Many recipes for making cake with honey in the older cook books are very elaborate, and usually direct the honey be brought to the boiling point and then skimmed and cooled. This custom of boiling probably was necessary when the honey was much less carefully prepared than at present, and when it contained impurities of many kinds. As a matter of fact, a cake made by stirring flour directly into cold honey is in no way inferior to cakes made with honey that has been heated.

Icing made with honey, or with part honey and part sugar has the same advantage that honey cakes have. It keeps soft and in good condition for a long time. Honey is not often used in bread making, but there is no reason why it may not be used in place of molasses or sugar in varieties of bread that call for such sweetening.

A few honey recipes are here given, all of them highly nutritious and suitable for children as well as for adults:

### Baked Honey Custard

5 eggs.
½ cup honey.
4 cups scalded milk.
⅛ teaspoonful powdered cinnamon.
¼ teaspoon salt.

Beat the eggs sufficiently to unite the yolks and whites, but not enough to make them foamy. Add the other ingredients and bake in cups or in a large pan in a moderate oven. The baking dishes should be set in water.

### Boiled Honey Custard

2 cups milk.
3 egg yolks.
1-3 cup honey.
⅛ teaspoon salt.

Mix the honey, eggs and salt. Scald the milk and pour it over the eggs. Cook in a double boiler until the mixture thickens. This custard is suitable for use in place of cream on gelatin desserts, or to be poured over sliced oranges or stewed fruit.

### Honey Pudding

½ cup honey.
6 oz. bread crumbs.
½ cup milk.
Rind of half a lemon.
½ teaspoon ginger.
2 egg yolks.
2 tablespoons butter.
Two egg whites.

Mix the honey and the bread crumbs and add the milk, seasonings and yolks of the eggs. Beat the mixture thoroughly and then add the butter and the whites of the eggs well beaten. Steam for about two hours in a pudding mold which is not more than three-quarters full.

### Rolled Honey Wafers

¼ cup butter.
⅞ cup flour.
¾ cup honey.

Mix together the butter and honey and add the flour, sifted with the spice. Spread out very thin with a broad, long-bladed knife or spatula on a buttered, inverted dripping pan, or on flat tins made for the purpose. Mark off in three-inch squares and bake in a slow oven until delicately browned. While warm, roll in tubular shape and hold until they are cool and, if necessary, until they harden into shape. Honey wafers are not quite so tender as those made with sugar.

### Honey Mousse

4 eggs.
1 pint cream.
1 cup hot, delicately flavored honey.

Beat the eggs slightly, and slowly pour over them the hot honey. Cook until the mixture thickens. When it is cool, add the cream whipped. Put the mixture into a mold, pack in salt and ice, and let it stand three or four hours.

### Yellow Honey Cake

½ cup sugar.
2 egg yolks.
2-3 cup honey.
¼ teaspoon cinnamon.
1½ cups flour.

Sift together the flour and the spice. Mix the sugar and egg yolks, add the honey, and then the flour gradually. Roll out thin, moisten the surface with egg white, and mark into small squares. Bake in a moderate oven.

### Honey Sponge Cake

½ cup sugar.
½ cup honey.
4 eggs.
1 cup sifted flour.

Mix the sugar and honey and boil until the syrup will spin a thread when dropped from the spoon. Pour the syrup over the yolks of the eggs, which have been beaten until light. Beat this mixture until cold; then add the flour, and cut and fold the beaten whites of the eggs into the mixture. Bake for forty or fifty minutes in a pan lined with buttered paper, in a slow oven.

This cake can be made with a cupful of unheated honey in place of the honey and syrup, but the quality is not quite so good.

---

## Breakfast Marmalades
(Sugarless)

As a butter saver, Americans might adopt the English custom of serving marmalade with toast or hot bread for breakfast. Let the fruit supply the sugar to be used in making these marmalades. Their virtue lies in the tartness of the fruit and the fact that they contain only what nature put in the fruits.

### Apple-Raisin Marmalade

To one cup ground seeded raisins add one cup chopped apples and one cup of water. Cook until thickened. A little orange and lemon juice and grated rind may be added if liked.

Cooked dried fruit, as apricots, pears, peaches, or prunes may be used in combination with the ground raisins in any proportion desired, and three fruits combined as apricots, apples and raisins.

Catsup added to the marmalades makes a simple fruit relish to serve with cold meat.

### Date-Prune Jam

Wash one pound prunes, soak over night; cook in same water and remove stones. Remove stones from one pound dates and cut in small pieces. Cook with prunes until mixture is thick. Add small amount of lemon juice.

### Prune-Apricot Butter

Wash one pound prunes and one-half pound apricots; soak over night; stew until very soft in same water; rub through colander; return to sauce pan and cook slowly until thick like apple butter, being careful that it does not burn. Do not add sugar.

# LEGAL SERVICE DEPARTMENT

In what way are taxes on bees assessed in Iowa? How much per colony? IOWA.

Under the Iowa law ten colonies of bees are exempt from taxation. Any number above ten colonies are given in to the assessor the same as other property, and they are taxed according to their value. The assessor fixes the valuation. The rate of taxation varies according to the levy of your county.

Can you give me information regarding the present law relating to foulbrood? IOWA.

The new Iowa law relating to bee inspectors reads:

"Upon written request of one or more beekeepers in any county of the State, said apiarist shall examine the bees in that locality suspected of being affected with foulbrood or any other contagious or infectious disease common to bees. If, upon examination, the said apiarist finds said bees to be diseased, he shall furnish the owner or person in charge of said apiary with full written instructions as to the nature of the disease and the best method of treating same, which information shall be without cost to the owner.

"Sec. 3. Anyone who knowingly sells, barters or gives away, moves or allows to be moved, a diseased colony or colonies of bees without the consent of the State Apiarist, or exposes any infected honey or infected appliances to the bees, or who willfully fails or neglects to give proper treatment to diseased colonies shall be deemed guilty of misdemeanor, and upon conviction thereof before any justice of peace of the county, shall be fined not exceeding the sum of fifty dollars, or imprisonment in the county jail not exceeding thirty days."

Mr. Eric Millen, Ames, Iowa, is the State Apiarist in charge of this work, and all letters of enquiry should be addressed to him.

### Agreement for Working Bees on Shares

Will you give a working agreement to cover the following:

I am to work bees on shares next year, the owner to furnish the bees just as they are. I do all the work, furnish my own tools, provide my own board, etc. All honey and beeswax is to be shared half and half, each to furnish containers for his own share. The owner of the bees is to furnish all extra supers necessary. All natural increase is to be equally divided, each to furnish one-half of the necessary hives.

It is very desirable that such agreements as the above be reduced to writing and that each party shall retain a copy to avoid possible misunderstanding. This seems to be a case where everything is explicitly provided for. The following is a simple form:

This agreement, made on this 10th day of December, 1917, by and between John Smith and Stephen Brown, witnesseth:

That the said John Smith hereby agrees to lease to Stephen Brown 200 colonies of bees together with the hives and equipment and to furnish such extra supers as may be necessary to harvest the crop, for the season of 1918.

The said Stephen Brown agrees to give careful and promt attention to the said bees, to use due care to guard against disease, and if disease be found at any time to give proper treatment therefor; to use diligence in saving all swarms that may issue, to provide necessary stores for needy colonies, and to perform all other necessary labor in the harvesting of the honey crop and attending to the usual work of the apiary. At the close of the season he further agrees to return to John Smith the full number of colonies provided with sufficient stores for the coming winter; provided, however, that he shall not be responsible for losses caused by tornadoes, storms or other causes beyond his control.

It is further mutually agreed that all surplus honey and wax shall be equally divided between John Smith and Stephen Brown, and that each shall furnish the necessary containers for his own portion; also that all increase shall be likewise equally divided and that each shall furnish one-half of the necessary hives therefor, and that the said Stephen Brown shall furnish his own tools, provide for his own board and other expenses and that the said John Smith shall not be held liable for any exenses except as herein provided.

Signed this 10th day of December, 1917.

JOHN SMITH.
STEPHEN BROWN.

# MISCELLANEOUS NEWS ITEMS

**Bee Meetings in Michigan.**—Mr. P. W. Erbaugh, a former deputy of the office of the State Inspector of Apiaries, now a Special Agent of the Federal Bureau of Entomology, has been assigned to work in Michigan for the time being. In co-operation with him a series of county meetings were arranged for January. To date we have held meetings at the following places: Marshall, Mason, Williamston, Munith, Adrian, Hillsdale, Coldwater, White Pigeon, Fenton, Birmingham and Ypsilanti. One of the objects of these meetings is the organization of County Beekeepers' Associations. The following counties organized associations with officers as follows:

Hillsdale County—President, E. A. Leffingwell, Allen; Vice President, Clyde Godfrey, Jonesville; Secretary-Treasurer, Vern Haskins, Osseo.

Oakland County—President, Arthur Houghton, Pontiac; Vice President, W. L. Lovejoy, Clarkston; Secretary-Treasurer, Miss A. Sly, Birmingham.

Washtenaw County — President, Floyd Markham, Ypsilanti; Vice President, E. B. Manwaring, Ann Arbor; Secretary-Treasurer, E. Ewell, Ypsilanti.

A number of other county organizations have been formed previously. The following places are scheduled for meetings during the rest of the month: Jackson, E. Lansing, Grand Rapids, Scottville, Big Bear Lake, Elk Rapids, Traverse City, Tawas City, Caro, Bay City, Saginaw and Owosso.

The severe storms experienced here have interfered somewhat with the attendance, but all meetings have been held as scheduled. The attendance has been very satisfactory. The matter of organization has been taken up enthusiastically and the fact that interested and public-spirited beekeepers have been made the officers of the associations insures the success of the organizations. In many places beekeepers have taken part on the programs. Mr. Erbaugh and the State Inspector have spoken on "Wintering," "Spring Management," "Swarm Control," "The Necessity of Increased Production," "Foulbrood" and "Extracted Honey Production." Beekeepers have been urged to increase their production through more efficient methods, by increasing their number of colonies, by buying or renting unproductive colonies, by producing extracted honey instead of comb, by proper winter protection and proper attention during the spring time and by co-operating in the control of bee diseases.

The results of these meetings are of permanent value to the State. Many beekeepers have been brought to the meetings who have never before attended a meeting where apicultural subjects have been discussed. All have been urged to ask questions and to discuss fundamental problems freely, with the result that many persons attending expressed their determination to increase their efficiency and profit by the new ideas gained. It will be necessary to discontinue these meetings during the month of February because the State Inspector also teaches Apiculture in the Agricultural College. The work will be taken up again in March.

B. F. KINDIG,
State Inspector of Apiaries.

---

**Sweet Clover Seed in Demand.**—According to the "Seed Reporter" of the Bureau of Markets, Department of Agriculture, Washington, D. C., sweet clover seed is scarce this year and the prices rule high. The reporter says: "The crop is reported very short and dealers have been scouring the country for available supplies, with but little forthcoming. The stocks on hand are very low and inadequate to meet the spring demand. Hulled white sweet clover seed is being quoted in a limited way at from $20 to $25 per hundred pounds."

What a change in a few years. The poor, despised sweet clover is at last coming into its own. The time should not be far off when beekeepers will begin to notice the effect of the increased plantings by additional forage for their bees. This is true already in the South and many parts of the west. Should this clover supplant the red clover, it will become true almost everywhere.

**West Virginia Meeting.**—The Pan Handle Beekeepers' Association will hold their spring meeting March 27, Market Auditorium, Wheeling, W. Va., and in all probability the West Virginia State Beekeepers will hold their annual meeting at the same place on March 28, which will make a two-day meeting. The following persons will be present to address the meetings: Mr. T. K. Massie, President of the West Virginia State Association will have and demonstrate the Massie hive. Mr. Adam J. Yahn will have a Langstroth hive and will demonstrate the proper way of putting the Langstroth together. Mr. Yahn is one of our deputy inspectors and he tells me that it is surprising how many people do not know how to assemble a Langstroth hive. Mr. W. E. Seaman will give us a talk on sweet clover, the benefit it is to the beekeeper, how the farmer can get bigger and better crops by growing sweet clover, its qualities for rebuilding our already too poor farms.

W. C. GRIFFITH, Sec'y.

**Tupelo Honey Exchange.**—In our January number we gave an account of the formation of the Tupelo Honey Exchange in Florida. Since then we have received added information which we give to our readers.

It takes the form of a stock company, its members owning the majority of stock.

They have applied for charter under the laws of Florida with main office at Wenwahitchka, at which place a majority of the producers live, and a branch office at Cordele, Ga., which is the main shipping point of tupelo honey of the South.

The object of this organization is to sell its output through one medium or seller and at a uniform price. If beekeeping has a great future in the South it is in this tupelo gum section and it is hoped through the efforts of this organization to promote it greatly.

In the past, beekeepers living remote knew but little about the honey market and they sold for what they were offered, all the way from 5c to 10c per pound. This has had its effect on the industry there which was very serious and accounts for the slow progress until a few years ago. But its growth has been wonderful of late and with this help it is hoped many more locations in this great belt will be stocked with bees, even by those who are already in the field.

Tupelo gum honey never granulates. Added to this feature its quality for domestic use cannot be excelled by any southern honey.

**W. M. Whitney Dead.**—We failed to chronicle the death of Mr. W. M. Whitney, of Evanston, which occurred on November 21, last, at the advanced age of 89 years.

Mr. Whitney was a familiar figure at the Northwestern Association meetings in Chicago each year, where he took prominent part in the discussions.

THE LATE W. M. WHITNEY

Always an enthusiastic beekeeper, and to the last a progressive one, he will be missed from the ranks of his profession. He had been a beekeeper for many years.

**Extracted or Comb?**—Professor L. V. France, of the University of Minnesota, sends us the following information concerning the courses of beekeeping at the Agricultural College and the opinions expressed by the students concerning the desirability of comb versus extracted honey production. Thirty-seven students were given the question, "Shall I produce comb or extracted honey?" The replies were as follows:

| | |
|---|---|
| Before 1918— | |
| For comb honey | 11 |
| For extracted | 26 |
| For 1918— | |
| For comb honey | 2 |
| For extracted | 35 |

Mr. France adds: "These students appreciate not only the advantages of extracted honey production over that of comb honey, but also the special present war situation requiring the increased production of extracted honey."

**Pushing Extension Work.**—The new office of State Apiarist in Iowa is getting the work well started. The beekeepers of that State asked for extension work for four years before they could get it. When the new inspection law was passed it provided for extension work also. Prof. F. E. Millen was appointed State Apiarist and has all such work in charge. He has been holding meetings at numerous points in the State during the past weeks, including a short course at the college during the Farmers' week roundup. A correspondence course is announced to reach those not in position to take advanntage of the regular courses. Iowa beekeepers are much gratified with the way the new official is taking hold of the work. A series of field meetings and apiary demonstrations are planned for next summer. Any Iowa beekeeper who wishes an apiary demonstration held in his neighborhood should communicate with Prof. Millen, at Ames, as early as possible, since he will have a busy season.

**A Michigan Meeting.**—The beekeepers of Branch county gathered at the court house at Coldwater, Mich., on January 10 for a one-day beekeeping school. The speakers were B. F. Kindig, State Inspector; Mr. Leffingwell, of Allen, and Mr. Erbaugh, of the extension service. Mr. Kindig spoke on feeding and how to secure sugar for feeding bees; he also talked on foulbrood. Mr. Leffingwell spoke on the production of extracted honey and Mr Erbaugh on wintering and swarming. About forty were present.

CHAS. GALLOP.

**New Man at Ames.**—Mr. E. M. Atkins has resigned his position with Prof. Webster at the Iowa Agricultural College to enter extension work in the government service. Mr. Wallace Park, of Manhattan, Kans., has been appointed to succeed him in charge of experimental work in apiculture and has already started with the work.

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

### Semi-Monthly Market News Bulletin

Honey arrivals since last report:

**Medina, Ohio.**—1,789 pounds Michigan.

**Keokuk, Iowa.**—No fresh arrivals.

**Hamilton, Ill.**—No fresh arrivals.

### Markets—Jobbing Prices

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report represent the prices at which the "wholesale carlot receivers" sell to the "jobbers.")

**Note:** Arrivals include receipts during preceding two weeks. Prices represent current quotations.

**St. Louis.**—Comb honey: No supplies; extracted, supplies light. Cans, bright amber 16-18c per pound; dark amber 15c. Beeswax; no sales reported.

**Denver.**—Comb honey: receipts very light. Extracted, approximately 27,000 pounds arrived. Comb honey: sup plies practically exhausted; no sales reported. Extracted honey: demand and movement good; white to light amber 16-17c per pound. Beeswax: receipts light; price to producer, yellow, 38c per pound.

**New York.**—Arrivals: 30 barrels, 25 casks Porto Rico, 3 barrels Santo Domingo, 675 barrels Cuba, 177 barrels Chile, report probably incomplete. Local demand moderate, market steady; export demand good, but hard to secure ship space. Extracted honey: domestic light, best 20-22c per pound; West Indian light, 19-20c; dark, 17-18c per pound. Beeswax: 104 bags, 12 boxes Porto Rico, 5 bags South American arrived; demand good, market strengthening. West Indian, yellow, 39-40c per pound; dark, 37½-38½c.

**Cincinnati.**—Extracted honey: one California arrived; local receipts very light; demand good, market firm, movement moderate on account of high prices; domestic, light amber 17-18c; orange and white sage, 22c. Comb honey: supplies practically exhausted; demand and movement good, market strong; fancy white heavy, $5.50; No. 1 white heavy, $5.25 per 24-sectional case. Beeswax: demand and movement good; market strong; average yellow, 43-45c per pound.

**Chicago.**—No fresh carlot arrivals. Receipts very light. Supplies very light. Stock from nearby States: Comb honey, best 23-25c per pound. Extracted honey, best 17-18c per pound.

**Philadelphia.**—360 cases comb from Vermont arrived. Practically no demand or movement; market very strong; very few sales. Comb honey: Vermant, amber $5 per 24-section; case; dark amber, $4.75. Extracted honey: no arrivals; no sales reported. Beeswax: No arrivals; no sales.

**Kansas City.**—No carlot shipments arriving. Demand limited; movement slow; market strong; few sales, all sales in small lots. Extracted honey: jobbing prices, California and Colorado, white and light amber, 17-18c; dark, 14½-15½c. Comb honey: sales direct to retailers, Californias, 24-section cases, No. 1, $5.50; native 24-section flat cases, No. 1, mostly $6. Beeswax: no fresh arrivals. Buyers paying 35-40c per pound.

**Minneapolis.**—No arrivals. Supplies very light. Demand moderate; market firm. Comb honey: 24-section cases Minnesota white, best, few sales at 18-19c, mostly 18c per pound; Colorado white, mostly at $5.50. Extracted honey: Minnesota, 60-lb. cans, best mostly 19c per pound. Beeswax: no sales.

**St. Paul.**—No arrivals reported. Supplies very light. Demand moderate; market firm. Comb honey: Minnesota, 24-section cases, fancy white, $5.50; No. 1 mostly at $5. Extracted honey: no sales reported. Beeswax: no sales.

MEMBERS IN ATTENDANCE AT THE NORTH CAROLINA MEETING. THIS STATE IS FAST BECOMING A "PROGRESSIVE" IN BEEKEEPING RANKS.

**Manual of North Carolina Association.**—The first manual of the North Carolina State Beekeepers' Association is just out. It is a pamphlet of 24-pages giving a history of the formation of the association, its constitution and by-laws, recommendations and general information.

The association unqualifiedly indorsed movable-frame hives, Italian bees, extension work, more care of bees, bee clubs for boys, specialization in one branch of beekeeping.

There is then given a summary of educational extension work done, list of dealers where standard supplies can be obtained, names of bee journals and bee-book publishers, a plan of meetings, and list of members of the association.

North Carolina ranks among the first of States in number of bees. Up to the last year or two very few of these bees, however, were in anything but box-hives. With the wide-awake organization they have now and with such men as Franklin Sherman, Bruce Anderson, C. L. Sams and others pushing, North Carolina should in time assume her place as a honey producer of the first rank.

### Feed and Save the Bees

To the Beekeepers of Massachusetts:

The honey market is experiencing unprecedented demands. More honey should be produced in 1918; hence, save your bees and prepare for maximum production.

Colonies in various localities of the State, by force of circumstances, have insufficient stores to enable them to survive the winter. (To winter a colony in Massachusetts requires at least 30 pounds of stores; calculate in proportion the emergency needs.) By arrangement, candy stores to save the bees become available about January 15, through the co-operation of the Sugar Division of the Massachusetts Food Administration which—

"Realizes the value and importance of beekeeping and has prepared to support by suitable arrangements the measures now being undertaken by the Massachusetts State Board of Agriculture for the relief of the beekeepers throughout the commonwealth."

### It is Necessary to Act at Once

First. See what further stores your colonies immediately require. It not being wise to try to feed sugar syrup during winter, try to supply additional stores in the form of candy. This, in the emergency, becomes available about January 15, at distributing centers as below.

Second. Then if your colonies are not protected and packed to keep them warm, do this at once. (Information will be sent upon request.)

### Distributing Centers

It having been impossible to arrange sugar distribution for home candy making, the Board of Agriculture has designated the following as distributors of soft candy for bees during the emergency:

Boston—H. H. Jepson, 182 Friend street.

Springfield—A. C. Andrews, Box 1474.

Worcester—Ross Bros.' Company, 90 Front street.

Orders, which will be accepted only from Massachusetts beekeepers, should be sent to your nearest distributor, accompanied by cash, and for the least possible candy necessary. Later in the season further supplies of candy should be available, hence, please do not stock up with more than you must use at present.

The number of colonies to be fed should be stated with your order.

### Directions for Feeding

Candy is procurable in paper pie plates or paper dishes. These are to be inverted (candy side down) directly over the bees, on top of the frames, in an empty super. A two-pound package is estimated to serve a colony about three weeks. One or more slabs of candy may thus be placed in a super and replaced as often as necessary. Over the candy, fill the super with insulative packing (any dry, warm material) in order to conserve all the heat possible. Keep everything dry.

If it is a cold day, work rapidly, but feed rather than to starve your bees. Do not delay feeding.

Very truly yours,
BURTON N. GATES,
Inspector of Apiaries and Collaborator U. S. Bureau of Entomology, Bee Culture Investigation.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

## Making a Colony Queenless—Demaree Plan

1. In my locality where little honey is coming in after July, and the bees consume a portion of the stores left on for winter, my colonies are in 2, 3 and 4-story hives by the last of July, full of bees, and the hives average from 8 to 16 frames of brood to the colony. As the bees raised from the eggs laid by the queen after the 10th to the 15th of June will be of little value to gather the clover flow and be too old for the best results in wintering. why not take away the queen about the 10th or the 15th of June. If she is a good one save her to increase or requeen and let the colonies raise a new queen, which will help in swarming, do away with the bees that would hatch in time to be consumers; and those raised from the new queen would be in better shape for winter.

Where the flow depends most on the clover would there be any objection to this system?

2. Where can I find the Demaree plan of bee management?

INDIANA.

ANSWERS. 1. I don't know. On the face of it it would look as if your scheme would work out all right; yet it very often happens that a thing that looks good in theory doesn't at all pan out so well when submitted to the bees. The thing to do is to try part of your bees in that way, and see how they compare with the rest. You *may* find that when the queen is gone the bees will not gather so well.

2. The Demaree plan has been given a number of times in this department, and you will find it in "A Thousand Answers," under the head of "Swarm Prevention."

Here is the plan: When a colony becomes strong at the time when swarms may be expected, and especially when it has started queen-cells, put all but one frame of brood in the second story, leaving in the brood-chamber, or lower story, one frame of brood with the queen, and fill up the empty space with drawn-out combs or frames filled with foundation, having a queen-excluder between the two stories. At the time of doing this, destroy all queen-cells, and 7 to 10 days later destroy any that may be started in the second story. That's the Demaree plan. and it may be used even after a swarm has issued and is returned.

---

## Banat Bees—Buckeye Hives

1. Please give me a description of the Banat bee.

2. Do any extensive beekeepers keep them?

3. Would also like a description of the Albino bees.

4. Do many large beekeepers use the Buckeye hives.

OKLAHOMA.

ANSWERS. 1. Banats look a good deal like common blacks, but with whitish rings. They have the reputation of being very gentle.

2. I don't know; but I think not in large numbers.

3. Albinos are a shade lighter in color than Italians and like Albinos of the human race, are likely to be inferior in vigor, and so not the best gatherers

4. They may, but I don't know

---

## Roasting Out American Foulbrood

To kill the germs of American foulbrood by boiling the frames with lye, the water warps the wood and the lye eats the nails. I roast the frames in the oven up to 400 degrees F., over a pan. The pan gets the wax, the heat gets the germs. The frames get light brown, but not enough to hurt.

OREGON

ANSWER. Water warps wood, to be sure, but I've cleaned hundreds of frames by boiling them in a solution of concentrated lye, and found them all right to use afterward. They were of straight-grained pine. If made of basswood—although frames should never be made of basswood the wet frames might be weighted down in straight piles to dry.

Lye eats nails, yes, and so does water under proper conditions; but I never found the nails in any frames hurt in the solution of lye. The wax can be saved, too, when you boil.

But your plan of roasting is better if only a few frames are to be treated. If the number is large, I'd rather boil them in a big kettle.

---

## Miller Queen Nursery

Last year I bought about twelve Rauchfuss queen-cages which, according to my opinion would fulfill the purpose of queen nursery.

However, they did not work. It was necessary to put the queen-cells in the cages just one day before emerging. when the bees had loosened the caps of the cells already. Then the virgin could not be kept longer than about a day.

Looking for a substitute I closed a regular frame on one side with a thin board, made about twelve apartments and closed the other side with perforated zinc, so that the bees had access to the cells, but the virgin could not be released. I was very successful this time.

Now, my dear Doctor, if you, in your "queen-nursery," would close one side with perforated zinc instead of using wire-cloth. or if you would cut your eight tins 10x2 of perforated zinc, you will overcome all the disadvantages of your "queen-nursery." In my nursery I put cells in before they are "ripe."

What do you think about my opinion?

WISCONSIN.

ANSWER.—I could tell better what to think of your opinion if that opinion had been more fully expressed. You think perforated zinc instead of wire-cloth would overcome all the disadvanntages of my queen-nursery, but you do not say what those disadvantages are, and I can think of only one. Perforated zinc has been in use for years for queen-nurseries, and more than one disadvantage is connected with its use. Virgins make desperate efforts to get through the perforations, and I've had them die upon being wedged in the openings. Of course, that could not happen with wire-cloth. With perforated zinc the bees may tear down the cells or steal the food and let the baby-queens starve. Of course this will not happen if the nursery is kept in a queenless colony, and is not likely to happen if it is in an upper story over an excluder, but it is often convenient to have a nursery in the same story with a laying queen, and with wire-cloth this is safe. Another point is that if a cell is in any way mutilated the bees will inevitably destroy it if perforations allow them to attack it. Many a time I have cut apart two cells so close together that one of them would have an opening in it, and the queen would mature apparently as good as any, whereas she would have been surely doomed if perforated zinc had been used.

I said I knew of but one disadvantage of the wire-cloth, which is the same as saying one advantage of the perforated zinc. It is that the bees can get into close contact with the cells. I don't know how much advantage that is. One would hardly think that in the middle of the brood-nest a thermometer would show a higher temperature in a little compartment containing bees than in one without them. Yet even if there be no difference in temperatures, it is possible that the very contact of the bodies of the bees closely surrounding a cell may have some subtle influence of real advantage to the occupant of the cell. Admitting that there is such an influence—and I am quite inclined to think there may be—it may be so little that it will be overbalanced by the several disadvantages named. On the other hand, it may be sufficient to overbalance them all. I don't know.

---

## Requeening—Wintering

1. I want to requeen two colonies; when would be the best time to do so?

2. How long after removing the old queen should the new one be introduced?

3. Should I be unable to find the old queen on the first attempt, how long could I keep the new queen in her cage without any bad effects? Should it be necessary to defer the search until the next day, where should I keep the caged queen?

4. What is the most practicable and safe method of introducing the new queen?

5. Having handled three colonies last summer, hiving two of them, but never having seen a queen, would you advise me to use much smoke in the quest?

6. When a queen is shipped are there any bees shipped with her? If so, what should be done with these bees when the queen is introduced?

7. I am wintering out doors, packing the super with burlap and building a box all around the hive with a 4-inch space on all sides, top and bottom, packing this space with maple leaves, putting on a board cover with rubberoid roofing. I put the regular cover over the super and am beginning to think I should have left it off. Should I?

8. How soon in the spring should I remove the burlap in the super and the winter packing around the hive?

ILLINOIS.

ANSWERS.—1. That depends somewhat on when the question is asked. All things considered, probably there is no better time than toward the close of the honey harvest. Yet if you want to introduce a pure queen so as to rear queens from her, it will be better not to wait so late, for if you should you would rear no queens from her the same season. So in that case it would be better to replace a very poor one, it will be better not to wait till fall.

2. There is not entire agreement about this. Some introduce the new queen at the time the old queen is removed; some introduce her a day or two after the removal of the queen; and perhaps the larger number put the caged queen into the hive upon removal of the old queen, but have the cage candied so that the queen will not be released by the bees until a day or two later. Some take the still further precaution to give the caged queen upon removal of the old one, but have the candy protected from the bees for a day or two before allowing them to eat it.

3. The new queen can be kept in her cage two or three weeks if there is plenty of food, and she may be kept wherever there is no danger of being chilled, say above 60 degrees, but about the best place to keep her is in the hive into which she is to be introduced, but not allowing the bees to get at the candy to release her.

4. Oh, my! It would take quite a book to tell all the ways that are claimed as best. Perhaps no way is more generally in use than with a provisioned cage in one of the ways mentioned in second answer.

5. There is hardly any way you can make more sure you will not find the queen that to deluge the bees with smoke. Use just as little as possible to keep the bees from flying at

you. If you do not find the queen after looking over the combs once or twice, close the hive and look again an hour or more later.

6. Yes; ten or more workers are in the cage with the queen, and you pay no attention to them, allowing them to stay in the cage and come out when the queen does.

7. Some say leave the cover on, but the most part would say it is better to leave it off.

8. Better not till bees are flying every day, or even until late in May, unless you are afraid the bees are running short of stores.

### Requeening

I have thirty colonies of black bees in my home yard, and I want to Italianize them. Do you think I can do so by buying a pure breeder and requeening them in early May, then requeening again in September with the same breeder in the same yard? Would all the black drones be gone by that time?

In my locality I can rear good queens in May and September. ALABAMA.

Answer.—Yes, if in May you replace your black queens with daughters of a pure queen, there would most likely be nothing but pure drones left in your apiary in September. But would it be necessary to requeen in September? Would not the chances for pure stock be just as good if you should wait till the next year to requeen? You seem to take it for granted that there will be no trouble from drones in surrounding apiaries, but that's a matter to be reckoned with unless nothing but pure stock is to be found within something like two miles of you.

### Moving Bees

I bought 12 colonies of bees and am going to move them about twenty miles. Is it advisable to remove the packing and cover them over with screen cloth? Of course it will be in the spring when I move them. LONG ISLAND.

Answer.—On a very hot day it would be desirable, and perhaps absolutely necessary to replace the cover with a screen, but on an ordinary spring day it would not be necessary.

### Damage in Moving—Age of Queen—Feeding

1. I bought a few swarms of bees on frames not wired, but joined together. In moving them I broke the combs and some of the honey is running out. How would you treat the bees, now or in the spring? They are in furnace cellar now.

2. How do you tell the age of a queen?

3. How much and at what time do you begin stimulative feeding in spring?

4. How much should an 8-frame hive weigh when it is taken out in spring?

5. Would it be better to feed the required amount of honey or syrup at one time?

5. How much sugar does it take to equal a pound of honey fed to bees?

6. How much water do you feed to bees to a pound of sugar. IOWA.

Answers.—1. Let them entirely alone while they are in the cellar, and even till fruit-bloom. Then lift out some or all of the frames that are freely movable, and cut apart the combs that are joined together, where possible crowding each comb into place in its own frame. If the combs are too badly broken down for this, then you will treat the case the same as in box-hives.

2. By looking in my book to see when she was born or clipped. There is no way by which you can be sure of the age of a queen by her looks, although as you gain experience you can make a pretty good guess by the more or less shiny look of an old queen, and by her slower movements on the comb.

3. I don't begin stimulative feeding in the spring or any other time. I see that abundance of food is present, and that's all the stimulation the bees need. There are places where there is a dearth of pasturage in the spring for so long a time that stimulative feeding is necessary to make the queen lay; but that doesn't happen here, and I don't believe it does in Iowa.

4. That varies. A hive may weigh 40 pounds and contain plenty of honey, while another of the same weight allows the bees to starve. The first has new combs that are light, with little pollen, while the second has heavy old combs loaded with pollen.

5. Generally it is better.

6. Any time early in the season you can feed sugar and water, half and half, but in feeding late for winter use 2½ parts sugar (either by weight or measure) to one of water.

Now, look here: seeing it's you, I'm willing to give you a little friendly advice: Don't go to fooling with sugar for bee-feed. Use honey and save sugar for the allies. Every time you do that you're hitting the Kaiser a whack on the "snoot," and goodness knows he needs all

# Crop Report and Market Conditions

### Honey

Stocks of honey are dwindling to such an extent as to be considered almost negligible. One large bottling firm is now paying 17 cents for good white honey where it can find it, and with but few offerings.

Still a few beekeepers are holding small quantities, "just to see what the market will do." One advises that he has about fifty cases of fancy extracted for which he is willing "at present" to take 20 cents per pound.

A letter from a British subscriber states that the British Beekeepers' Association has recommended a price of 60 cents per section for comb honey at retail and 40 cents per pound for extracted at retail. This, of course, is caused by the extreme demand for honey there owing to shortage of sugar.

Unless our food committees regulate the prices to be received for honey, or unless the war ends in the meantime, we cannot see where the price of honey in this country can drop very low, during 1918.

### WINTER LOSSES

Reports from Texas are not very encouraging. Following two seasons of drought and short crop, many colonies have died, probably a larger proportion than in any recent years, and the outlook is anything but rosy. Many beekeepers are abandoning beekeeping altogether and melting up combs rather than pay the prices asked for sugar, which is also hard to obtain.

Only a few reports are coming in from the central sections and from the north. These differ widely. Where bees went into the winter in good shape with plenty of stores and ample protection, the losses seem to be about average.

There is some loss from starvation already and several reports of losses from poor food, combined with long confinement.

### MARCH REPORT IN FULL

For our April number we expect to make a detailed report of conditions as reported to us by reporters over the country.

Will there be a freight embargo on your Honey crop?
The Honey flow does not wait for a delayed shipment of Supplies.
ORDER NOW
WESTERN HONEY PRODUCERS SIOUX CITY IOWA
Lewis's Beeware THE TWO BEST LINES Dadant's Foundation
We buy Honey and Beeswax Wax Rendering a Specialty

the whacks you can give him. Then, when the war is over continue the same plan, because honey is better for bees than sugar. "Haven't any honey." Well, that's bad, and you'll have to use sugar. But don't let it happen again. Each year save up enough combs of sealed honey so that you will have an abundance to give to any colony that needs it, and unless your hives are large you will find that most of your colonies will be better for one or more extra combs each spring.

### Receiving Shipped Queens

1. I want to send South for some queens for requeening next spring, which I want to do as early as possible. Now, suppose I order queens to be delivered about April 20 and we should happen to get some bad weather for some days so I cannot open the hives, what can I do to save the queens?

2. How long can a queen be kept alive away from other bees?

3. Does it make any difference how far I send South for my queens, or is it better to get them as far North as possible? If so, how far North will they have queens ready for shipment April 15? MICHIGAN.

ANSWERS.—1. Keep them in the house where it will not be colder than 60 degrees, making sure that the food is not exhausted. But I wouldn't think you would want them before at least a month later.

2. I don't know how long without any bees at all; but with the usual escort she would likely be all right for two or three weeks.

3. I don't think it makes any difference how far South you send. You would hardly get queens April 15 without sending south of 35 degrees.

### Feeding Honey

We are having severe weather here and my bees will need a little feed in April. Can I feed honey that has soured, next spring, after the bees have a flight?

ANSWER.—After bees are flying daily there is no harm in feeding such honey. But it should not be fed in the fall.

### Sugar Candy

1. Would bees live on a cake of sugar if it was placed over the brood frames in the winter or spring?

2. Will bees live on common dry granulated sugar? ILLINOIS.

ANSWERS.—1. They will live on a cake of sugar candy, but I doubt if wetting granulated sugar and letting it dry will make a good cake of candy. You must boil it first.

2. I think not.

### Carniolans

I want to keep bees this spring, but I cannot decide what kind to get. I would rather keep Carniolans, because I understand they are the best honey gatherers. Because of their large size, I think the ordinary wax foundations and bee supplies are too small for them. Please tell me if this is so. I want to run for extracted honey alone, and use the Dadants' big hive. Do you think they would do well? WISCONSIN.

ANSWER. You have been wrongly informed as to the size of Cariolan bees. Ordinary supplies, including foundation, are used with them, and I don't think you could get foundation of larger size if you wanted it. If you had them side by side with Italians I don't think you would see any difference in size. Most beekeepers prefer Italians. Comb foundation of the usual size is used in the big Dadant hives.

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**Queens That Will Please**

**Over 20 Years of Careful Selecting and Breeding**

They are bred from **Imported** stock, the very best for honey gathering and gentleness. They are not given to swarming and are highly resistant to diseases. Give me your order, and after you have given my queens a fair trial, if you are not satisfied in every way that they are as good as any you have ever used, just return them and I will send you queens to take their place or return your money with any postage you have paid out on returning the queens.

**Prices April 1 to June 15**

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Selected untested | 1.15 | 6.00 | 10.00 |
| Tested | 1.50 | 8.00 | 17.00 |
| Selected tested | 2.00 | 11.00 | 20.00 |

**Guarantee.**—You take no risk in buying my queens, for I guarantee every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction.

**L. L. FOREHAND, Ft. Deposit, Ala.**

*"Griggs Saves You Freight"*

**TOLEDO, O.**

Say, Mr. Bee Man, have you placed that order for supplies yet? If not, remember we not only save you freight, but time and money as well.

**DELAYS ARE DANGEROUS**

But don't delay, as Railway Embargoes are all the rage now, and you may be caught.

**LARGE NEW STOCK ON HAND**

All ready to ship out, direct from ROOT'S, who know how to make good goods.

**HONEY AND BEESWAX**

Always wanted; cash or in trade. Send for FREE CATALOG.

**S. J. GRIGGS & COMPANY**

**Department No. 24** **Toledo, Ohio**

*"Griggs Saves You Freight"*

**TYPEWRITER SENSATION**

**$3^{00}$ a Month Buys A Visible Writing L. C. Smith**

Model No. 5 perfect machines only of standard size with keyboard of standard universal arrangement—has Backspacer—Tabulator—two color ribbon—Ball Bearing construction—every operating convenience. **Five Days Free Trial.** Fully guaranteed. Catalog and special price sent free.

**HARRY A. SMITH, 314 -- 231 North Wells Street, CHICAGO, ILL**

12 FEMALE
MALE

**Wanted** Butterflies and insects. I buy hundreds for colleges, museums. Some $1-$7. Easy work; even boys earned good money with their mothers' help and my instructions, pictures, price list. Before sending specimens, send 3c stamp for prospectus. SINCLAIR, dealer in insects, Bx. 415 D 41, Los Angeles, Calif.

**Bee Hives and Supplies of All Kinds**

Discount for early orders. Book on how to handle bees, 27c by mail Instructive catalog free.

**J. W. ROUSE, Mexico, Mo.**

**Don't Stop Advertising**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 85c.

**American Bee Journal, Hamilton, Illinois**

# Classified Department

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

## BEES AND QUEENS

FOR SALE—First-class Italian queens and bees in season. Send for price list. Free from disease; safe arrival and satisfaction guaranteed. M. Bates, Greenville, Ala., R. 4.

BREEDING QUEENS—I have a few extra choice Italian breeders for spring delivery. Price $5 each.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

OUR BRIGHT ITALIAN QUEENS will be ready to ship after April 15. Untested, 75c each, $8 per doz., or $65 per 100. Safe arrival guaranteed.
Tillery Bros., Georgiana, Ala., Route 5.

FOR SALE—Fine Italian queens at 90c each, $9 per doz. Ready April 15. Safe arrival guaranteed.
T. J. Talley, Route 3, Greenville, Ala.

THREE-BAND ITALIANS ONLY—Queens, packages and nuclei. Untested queens, each $1, 6 $4.25, 12 $8.25. Write for prices in larger lots, also nucleus and packages; booking orders now. If you consider quality, pure mating and low prices I am your queen-breeder. I have adopted Gleanings Code for the sale of bees and queens. H. G. Dunn,
The Willow, San Jose, Calif.

GOLDENS THAT ARE TRUE TO NAME—Queens, nuclei and bees by the pound; we receive hundreds of testimonials annually. Write for list. Untested queens, each $1. 6 $4.25, 12 $8.25. Write for prices in lots. We are now booking orders for early delivery. We have adopted Gleanings code for the sale of bees and queens.
Garden City Apiaries, San Jose, Calif.

FOR SALE—Bees. April 15 is the date on which we can ship you the best three-banded bees and queens on the market; we have been in the bee business continually for twenty-four years and have been striving to secure the best three-banded bees which money could buy and skill produce, all these years. Judging from the many letters we have received from satisfied customers, we have succeeded in our efforts. We believe we can furnish you with the best honey-gatherers to be found anywhere. You will find our nuclei better filled with bees and brood than any other nuclei you can buy. All our bees are on standard, wired, Hoffman frames; full sheets of foundation. File your orders now, sending money when you want the bees shipped. Satisfaction and safe arrival guaranteed. We quote you, without queen, as follows: Three-frame nuclei, $2.75; two-frame nuclei, $2.25; one-frame nuclei, $1.75; three pounds bees, $3.75; two pounds bees, $2.75; one pound bees, $2.00. If queen is wanted with bees, add price of queen wanted. Young untested queens, 75c; young tested queens, $1.
The Hyde Bee Company,
Floresville, Texas.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDEN Italian Queens, bred strictly to produce Golden bees of the best honey-gathering strain; untested, each, $1; 6, $4.25; 12, $8.25; 100, $60. Satisfaction guaranteed.
L. J Pfeiffer, Route A, Los Gatos, Calif.

GOLDEN Italian Queens, untested queens, $1 each; six, $4.25; $8.25 per doz.. 50, $32.50; $60 per 100. Tested queen, $1.50; one frame nucleus, no queen, $1.25; 2-frame, $2.25; 3-frame, $3; breeders, $5 and $10.
L. J. Dunn, 54 Broadway Ave., San Jose, Cal.

WANTED—10 to 100 swarms of bees not over 50 miles from Bellevue, Ohio.
N. B. Querin, Route No. 7.

FOR SALE—I still have for sale some of the high grade Italian bees, I advertised in the February issue of the American Bee Journal, a year ago. They are in good eight-frame hives. Price, with one super, $5. Still too many bees in town. Only one block from main street, reason for selling. G. F. Schilling,
State Center, Iowa.

FOR SALE—Warranted queens from one of Dr. Miller's breeders; also limited number of package bees. Write for prices.
Geo. A. Hummer & Sons,
Prairie Point, Miss.

FOR SALE—Mott's strain Italian queens. Plans, "How to Introduce Queens and Increase," 25c. E. E. Mott, Glenwood, Mich.

THREE-BANDED Italian Queens, untested, one, $1; doz., $9; nuclei and packages with fine queens, 2-fr., $3.75; 3-fr., $4.50; 1 lb., $2.50; 2 lbs., $3.50; 3 lbs., $4.50; June 1.
A. E. Crandall & Son, Berlin, Conn.

THE best Italian stock, three-bands and goldens at $2.50 per pound, without queen; 2 pounds, with queen, $4. Rosedale Apiary.
J. B. Marshall & Son, Big Bend, La.

BOTH Italians and hybrid bees at $2.50 per pound with untested queen; 2 pounds, with queen, at $4.
Mrs. T. H. Carruth, Big Bend, La.

FOR SALE—Golden Italian bees; 1-lb. pkg., with queen, $2.50; 2-lb. pkg., with queen, $4; 2-frame nuclei, with queen, $3.50.
L. J. Bond, Big Bend, La.

HAVE YOU, Mr. Producer, been getting all for your honey that you could expect? If the price you have been getting has been less than the largest price you have read about, let the Domestic Beekeeper. Northstar, Mich., help you dispose of your 1918 crop. Investigate.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

THREE-Banded and Golden Italian Queens and pound packages in spring, from the Sunny Southland. Grant Anderson,
Rio Hondo, Texas.

PURE 3-banded Italian queens, untested but warranted, $1; 6, $5; tested, $1.50; 6, $8. Last year's tested queens, clipped, $1. Good fat nuclei and full colonies in abundance. Write for price list. J. F. Diemer,
Liberty, Mo.

BEES WANTED—From one to 100 colonies within 200 miles; also used equipment.
John F Geiger, Syracuse, Kans.

BEES AND QUEENS—What a pleasure when you know and I know and the bees know that you have placed your order to be shipped to you in April and May; no war prices. Write
S. Mason, Hatch, N. M.

THREE-BANDED Italians; untested queens in April and May, one, $1; 6, $5; 12, $9. Tested, $1.50 each. One-pound packages of bees, $1.50 each; two-pound packages, $2.50 each. Add price of queens if wanted. If you want as many as 50 packages write for prices and discounts on early orders. Safe arrival and satisfaction guaranteed. No disease, and all queens purely mated.
Cotton Belt Apiaries, Box 83, Roxton, Texas.

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolans. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo, Leon So., Tex.

## HONEY AND BEESWAX

FOR SALE—Two barrels amber honey, boneset, smartweed and goldenrod; 104 gallons in lot, and best offer takes it.
J. F. Archdekin, Bordelonville, La.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered.
The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa. Monroe, Wis.

FOR SALE—Alfalfa white extracted honey in new 60-lb. cans; if interested quote me a price. Sample, 10c.
J. M. Minkes, Box 112, Basin, Wyo.

EXTRA Fancy Montana Extracted Honey in new 60-lb. cans, $12 per can; 6 pails weighing each 10 lbs., net per case, $12.60; 6 pails weighing each 10 lbs. gross, per case, $12. Last and best of the crop.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

WANTER—Beeswax at all times in any quantity, for cash or in exchange for supplies.
Dadant & Sons. Hamilton, Ill.

## SUPPLIES

ARE YOU keeping well posted on the crop condition and price prospects for your 1918 crop of honey? If not, you should! The Domestic Beekeeper, Northstar, Mich., will keep you posted on crop condition and price prospects as recommended by the Committee of the Chicago Northwestern Association. This committee, through the Domestic Beekeeper, saved producers a half million dollars on their 1917 crop of honey and expects to do even better on their 1918 crop. Are you one who is not taking advantage of an opportunity never before offered to secure all your crop of honey is worth? This opportunity is worth investigating.

CONSERVATION PASTE—Costs less than 1c per pint; will stick your label on anything any time; easily and quickly made; no boiling; simple ingredients; ready for use in 30 seconds. Send 25c for formula. Money refunded if not satisfactory.
Sunnyside Apiaries, Fromberg, Mont.

NORTHWESTERN BEEKEEPERS — Save time and freight charges by ordering supplies near home. Best standard goods, factory prices. Send list of wants, and I will quote lowest prices. Catalog upon request.
George E. Webster, Valley View Farm Apiary,
Sioux Falls, S. Dak.

FOR SALE—One thousand beehives with supers; three-fourth dovetailed, balance halved together at corners and nailed both ways. Hoffman frames throughout. We will guarantee them to be sound and free from disease. Will sell all or any part at about half what new hives will cost. Apply to The Hyde Bee Co.,
Floresville, Texas.

200 VEGETABLE PLANTS, $1, including tomatoes, peppers, egg plants, lettuce, celery, cabbage; 100 flowering plants $1; choice assortment R. I. Red eggs; day-old chicks, bees, queens, honey. Grubb,
Box B 14, Woodmont, Montg. Co., Pa.

"BEST QUALITY" comb foundation for L. or H. frames; 20-pound lot; med. brood. 55c; light brood, 60c. Pure natural beeswax, not "Weed process."
J. J. Angus, Grand Haven, Mich.

$1,200 for the best comb-honey outfit in central Iowa. Box 42, Colo, Iowa.

FOR SALE—A lot of comb-honey supers, 25 and 35 cents each; mostly with sections and foundation; no disease. Also a large showcase 40 in. long, 36 in. high and 24 in. wide; glass on all four sides; price, $5. A light scale and other supplies.
Chester E. Keister, Clarno, Wis.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog.
E. Burdick, Sunnyside, Wash

## HONEY LABELS

HONEY LABELS—We have just issued a new and up-to-date catalog of honey labels and stationery. Write for your copy. Neat labels and quick delivery guaranteed.
American Bee Journal, Hamilton, Ill.

SOUVENIR Bee Postal Cards, 5 for 10c; "Songs of Beedom" (10 songs), 20c, all postpaid. George York, Sandpoint, Idaho.

## WANTED

WANTED—50 to 200 colonies of bees, preferably near home.
H. G. Quirin, Bellevue, Ohio.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—300 or less colonies of bees for cash and spring delivery. Correspondence, with full particulars, solicited.
A. W. Smith, Birmingham, Mich.

WANTED—Bees; 1 to 100 colonies.
C. O. Smith 5446 Cornell Ave., Chicago.

WANTED—Bees to work on shares or rent; have good location and experience. Write for particulars.
J. H. Waibel,
Kawkawlin, Mich.

WANTED—To buy, a two or four-frame extractar. State condition and price.
Addison Gould, Buckhannon, W. Va.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—We are looking for old bee-books, back numbers of the Bee Journals, issued prior to 1907, etc., for some of our subscribers who wish to complete libraries of beekeeping literature. Just now we want especially copies of Alley's Beekeepers' Handy Book, the second volume of Cheshire on Beekeeping, and copies of Harbison's and Wildman's books. Readers having old beebooks or bee journals which they no longer care for will please write us fully what they have to offer, with prices asked.
American Bee Journal, Hamilton, Ill.

## SITUATIONS

WANTED—Position as student helper in large bee business. Have had some experience. Can give best of reference as to my character and reputation.
Henry Eggers,
Eau Claire, Wis., R. F. D. No. 1.

HELP WANTED—Will give experience and fair wage to active young man who is not afraid of work, for help in large, well-equipped apiaries for season starting in April. State present occupation; also age, weight and why exempted.
Morley Pettit,
The Pettit Apiaries, Georgetown, Ont. Can.

YOUNG LADY, refined, educated, good worker, desires season on commercial apiary in Southern States; some knowledge of poultry and green-house work.
R. A. F., care Fifth Ave. Bank,
New York City.

WANTED Man to work with bees, season 1918; state age, experience and wages on basis of board furnished by us. Address
The Rocky Mountain Bee Co., Billings, Mont.

WANTED—By middle-aged man, with experience, 100 to 150 colonies of healthy bees, equipped for extracted honey, to work on shares.
M. Knudsen, Albert Lea, Minn.

WOULD YOU like to receive four or five hundred dollars per hundred more for your 1918 crop of honey than the big buyers will offer you? The Domestic Beekeeper, which will cost you but $1 per year, will show you how. This is no guesswork; we have done this very thing with hundreds of our subscribers on their 1917 crop, and are willing to do the same by others. You will make your greatest 1918 mistake if you do not, every one of you investigate the work of the Domestic Beekeeper is doing for its subscribers, along the line of buying and selling for them.

WANTED—One or more men of some experience in the handling of bees. Prefer them to be under or past military age and morally of good habits. A good chance for the right party or parties to earn fair wages and learn queen-breeding, the package business and honey production.
M. C. Berry & Co., Hayneville, Ala.

WANTED—Young man for season of 1918, as helper, and learn bee business; experience not required. Board and good wages to right man.
A. J. McCarty,
712 Coffman St., Longmont, Colo.

WANTED—Can take two students for season of 1918; board given in exchange for work, and more if season is good; running ten apiaries.
R. F. Holtermann, Brantford, Ontario, Can.

WANTED—Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

WANTED—Expert comb-honey man, with references, to handle 700 stands of bees. Good proposition to right man.
Hagerman Valley Bee and Honey Co.,
Hagerman, Idaho.

## FOR SALE

FOR SALE—Wishing to retire from active business, I offer for sale 300 colonies bees in 8 and 10-frame L. hives; 750 full depth extracting supers, with combs; 400 section honey supers; 300 honey boards; 75 escape boards; eight-frame power extractor, with honey pump; four H. P. gasoline engine; saw with dado, planer heads and attachments for making supplies; a complete apiary in No. 1 condition; good location. 1917 crop was 14 tons honey. Will also sell my home place of ten acres, 5-room house and No. 1 improvements, near to a $5,000 schoolhouse. Will sell home separately and give terms.
J. R. Marlow,
R. D. No. 1, Weiser, Idaho.

FOR SALE—Small fruit farm and bees, cheap.
W. H. Gray, Chillicothe, Ill.

PATENTED Jan. 1, 1918, the C. B. Saunders Bee Feeder, a bee feeder which is made to go down into the brood-chamber. If any manufacturing company or companies are interested in the patent write,
Chas. Boone Saunders, Barrington, Ill.

LAST FALL Mr. Smith asked us our advice on when best to sell his crop of 15,000 lbs. of clover extracted honey. We answered him by advising that he hold until May, unless he got a good round price for it before. He could at that time have taken something like 12c per pound for it. He held it. At our Michigan State Convention last December, he again asked what we thought about the future price of honey. He could then get 17c per pound for it. We advised him to hold. He sold the entire crop the other day on board the cars for 18½c per pound. Mr. Smith's case is only one in hundreds of cases where producers have done well by following the advice of the Domestic Beekeeper. We want every beekeeper who has honey to sell to send in his dollar for the Domestic Beekeeper during 1918. We have the back numbers. You can begin your subscription with the January number, thus making your volume complete. Do it today, and at the end of the year get your dollar back if you think you have not received its worth.

**I Am Ready to Book Orders Now**

for spring delivery for Italian bees in pound packages at $1.40 per pound. Tested queens, $1.25. Untested, 90c, 6 for $5.00. Safe arrival guaranteed. Free from disease.
C. H. COBB, Belleville, Ark

"Somewhere in the U. S."

There are thousands of beekeepers who have not ordered their supplies for this season. The U. S. Government asks an increased production of honey to relieve the sugar shortage.

The Kretchmer factory has been working steadily all winter filling its own warehouses and rented storage space. A number of our workmen have been with us for years—they know how to make the kind of supplies you want for your bees.

As a result of careful tests extending over a long period of years, actual tests under all climatic and weather conditions, we make our Hive Bottoms of SOUTHERN CYPRESS, the decay-resisting wood, the Bodies or Brood Chambers and Supers of NORTHERN WHITE PINE (it holds paint, finishes well, and does not check or split), and the Lock Cap Covers of California Redwood.

If you haven't received a copy of our new green catalog, a regular BEEKEEPERS' DEPARTMENT STORE, send for it at once.

By all means get your order in without one bit of unnecessary delay. You don't want to lose any high-priced honey this year on account of getting your supplies too late. If you'll mail us the order now, we'll do the rest.

KRETCHMER MFG. CO.
Tanks, Grain Bins, Silos, Beekeepers' Supplies
301 Eleventh Ave., Council Bluffs, Iowa

THE CANADIAN HORTICULTURIST AND BEEKEEPER
THE ONLY BEE PUBLICATION IN CANADA

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.

Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive and practical monthly magazine.

Well illustrated and up-to-date. Subscription price postpaid.
Canada, $1.00 a year. United States, $1.25 a year. Foreign, $1.50 a year.
Sample copy sent free on request.

The Horticultural Publishing Co., Limited, Peterboro, Ont., Can.

## QUEENS — BEES — QUEENS

**Three Banded and Golden Italians; the best *of* either**

ey are hustlers; gentle to bandle; cap their honey white; are very resistant to European foulbrood. We have added Mr. B. M. Carraway's ueen-rearing outfit to ours and have with us one of his assistants, so can fill all orders promptly. Had fine success shipping bees last season in r newly devised cage and method of feeding, a number of shipments going as far as Idaho and Wyoming. Mr. R. B. Mills, Corinth, N. Y., rote, "Bees arrived in fine shape, not 50 dead bees to the cage, 2-lb. size." Satisfaction and safe delivery guaranteed. Get your order in early. eference: The Guaranty State Bank, Robstown, Texas, or the City National Bank, Corpus Christi, Texas.

| | 1 | 6 | 12 | 50 | 100 | |
|---|---|---|---|---|---|---|
| ntested Queens | $1.15 | $ 6.35 | $11.50 | $43.70 | $ 85.00 | Add price of Queens wanted to packages. |
| elect Tested | 2.50 | 11.50 | 20.70 | 74.75 | 138.00 | |
| ees, one-pound package | 1.75 | 9.80 | 18.40 | 74.75 | 138.00 | |
| ees, two-pound package | 2.90 | 17.25 | 33.95 | 132.25 | 240.00 | |

CIRCULAR FREE.

**NUECES COUNTY APIARIES, Calallen, Texas**

# BEEKEEPERS

## KEEP IN TOUCH WITH

# Leutzinger & Lane

236-238 Drumm St.
SAN FRANCISCO, CALIF.

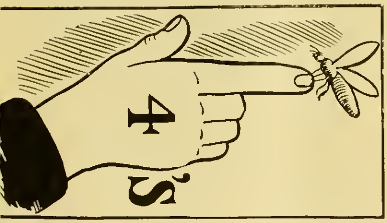
**Buyers of EXTRACTED and COMB HONEY**

**Shippers and Exporters of HONEY**

[ The WORLD is Our Market ]

## A Simple Problem That = Much

The simple problem (yet often missed) that presents itself to every beekeeper is the buying of queens. "Easy," you say; "anyone can do that." It is true everyone *can* buy queens, BUT DOES EVERYONE GET *GOOD QUEENS?* And if you don't, what HAPPENS?



TRY

## FOREHAND'S THREE BANDS

THE THRIFTY KIND
and be sure

Over a quarter of a century of select breeding makes them thrifty. hardy, gentle and beautiful.

Ours are the Imported Queens, Americanized. This makes them light in color, but they still retain the fine qualities of their imported mothers.

We have placed these Queens on the market for over a quarter of a century, and every year the demand increases.

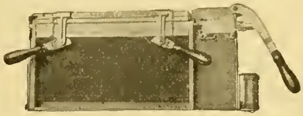
Doesn't this prove that they are good Queens?

Deposit your order now and insure prompt delivery. Only one-fourth cash down, to insure you of prompt delivery and us of your gool faith. We begin shipping April 1. We guarantee pure mating, safe arrival, and satisfaction.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 1.25 | 7.00 | 11.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

WRITE FOR CIRCULAR.

**W. J. FOREHAND & SONS, Fort Deposit, Ala.**



PAT. APPLIED FOR

## C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing. Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

## HONEY JARS

We carry several styles of honey jars, the most popular being the 1-lb. screw cap at $6.50 a gross. If you need shipping cases, we have them. Catalog of supplies mailed upon application.

We have a fair stock of light amber and amber honey. Write for prices.

**I. J. STRINGHAM**
**105 Park Place, New York**
**Home Apiary, Glenn Cove, L. I.**

## BEEKEEPER'S SUPPLIES

**HIVES . FRAMES**
**FOUNDATION . ETC.**

**The Tillson Company, Ltd.**
**Tillsonburg, Ontario, Canada**

## BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and quality. Write for catalog.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

**200 VEGETABLE PLANTS $1**
assorted,
including Tomatoes, Peppers, Egg Plants,
Lettuce, Celery, Cabbage.
100 FLOWERING PLANTS $1
Choice assortment from thirty varieties.
R. I RED EGGS. DAY-OLD CHICKS
BEES QUEENS HONEY
**GRUBB,**
Box B 14, Woodmont, Montg. Co., Pa.

## Three Banded Italian Queens .. Bees by the Pound .. Golden Italian Queens

Twenty-Two Years of Select Breeding gives us Bees of Highest Quality—Bees of Unusual Vitality—
Bees Resistant to European Foulbrood.

**PRICE LIST OF QUEENS**

Untested..................$1.00—25 or more, $ .90 each
Tested..................1.50—25 or more, 1.40 each
S. Untested..................$1.10—25 or more, $1.00 each
S. Tested..................1.75—25 or more, 1.60 each

**PRICE LIST OF BEES BY THE POUND** (Without Queens)

1-lb. Packages..........$2.00 each
2-lb. Packages..........$3.50 each
3-lb. Packages..........$4.50 each
25 packages or more, 5% off above prices. If Queens are wanted, add price.

**10,000 Pounds of Bees ═══ Annual Capacity ═══ Italian Queens, 15,000**

SAFE ARRIVAL AND SATISFACTION WE GUARANTEE

**M. C. BERRY & COMPANY, HAYNEVILLE, ALABAMA, U. S. A.**

## NOTICE!
## Beekeepers' Supplies

℄ We are now located in our new plant, equipped with the latest machinery for making Supplies. Write for catalogue, which will be ready for mailing in January.

℄ We can save you money, no matter how large or how small your order is. A trial will convince you—Quality First.

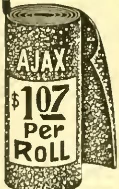
℄ We are also equipped to render your Wax from old comb and cappings. Our charge is only 5 cents per pound for the Wax rendered. Our steam press extracts every particle of wax possible to get.

℄ Give us a chance to bid on your wants. Write for catalogue today. All correspondence cheerfully answered.

**THE M. C. SILSBEE CO.**
**AVOCA, NEW YORK**

## Now Is The Time To Buy Your Roofing!

**CHICAGO HOUSE WRECKING CO.**



Corrugated
$2.50
Per
Square

**Quick action on your part is really necessary if you wish to get your share** of these unheard of savings. So, don't delay—sit **right** down and write your order **now.** Every offer below is covered by our satisfaction or money-back guarantee.

### Order Today From This Bargain List!

**Ajax high grade rubber surfaced Roofing; put up 108 sq. ft. to the roll.** Complete with nails and cement. Lot No. GC302, 3 ply, roll $1.27; 2 ply, roll $1.17; 1 ply, roll .................. **$1.07**

**Rawhide Stone Faced Gold Medal Roofing guaranteed 15 yrs.** Rolls contain 108 sq. ft., nails and cement included. Lot No. GC303. Roll **$2.20**

**Our famous Rawhide Rubber Roofing, 3 ply, guaranteed for 12 years;** a high grade covering. Rolls contain 108 sq. ft., nails and cement included. Lot No. GC304, 3 ply, roll $1.50; 2 ply, roll $1.40; 1 ply, roll **$1.20**

**10,000 Rolls of Extra Heavy high grade Roofing; Red or Gray Slate** Coated, Rock Faced, Brown Pebble Coat, Double Sanded, Mineral or Mica Surfaced. Lot No. GC305, roll 108 sq. ft. with nails and cement **$1.90**

**28 gauge, painted, 2½ in. corrugated overhauled siding sheets;** 5½ ft. long. Lot No. GC306, 100 sq. ft. .................. **$2.50**

**26 gauge painted 2½ in. corrugated overhauled roofing sheets.** Lot No. GC307, 100 sq. ft. .................. **$3.00**

**24 gauge Extra Heavy painted 2½ in. corrugated overhauled** sheets for roofing barns, granaries, etc. Lot No. GC308, 100 sq. ft. **$3.50**

**If you need further information before ordering, send us a rough sketch of your building showing size of roof, length of rafters, etc. Mention the kind of roofing you wish and our low freight paid prices will follow.**

ADDRESS OWNERS: **HARRIS BROTHERS CO.,** Dept. GC- 273
35th & Iron Sts., Chicago

## Bigger Fruit Profits

The fruit grower of today is reaping his greatest profits by keeping in close touch with the progress of the industry and developments.

**Green's**
**American Fruit Grower**
**"The National Fruit Journal of America"**

through its many articles on growing, marketing and related subjects, points the way to bigger fruit profits. A sample copy will be sent you on request; better still, take advantage of our rate of

**3 Years for $1.00**

which brings you 36 copies of Green's American Fruit Grower—filled from cover to cover with money-making suggestions.

**GREEN'S AMERICAN FRUIT GROWER**
**Chicago, Illinois**

Write for Price List and Booklet descriptive of
**HIGH GRADE**
**Italian Queens**
And Bees by the Pound
**JAY SMITH**
**1159 DeWolfe St.**
**Vincennes, Ind.**

### Three-Banded Italian Queens and Bees

I am now booking orders for spring delivery of my best superior breeders. They are gentle, hustlers; winter well, not inclined to swarm. There has never been any disease in my apiaries. Untested, 75c; 6, $4; 12, $7.50; 100, $60. Select untested, 90c; 6, $5.25; 12, $10; 100, $75. Tested, $1.25; 6, $7.50; 12, $14. Select tested, $2 each. One-pound package without queen, $1.25; 12, $14. Two-pound package without queen, $2.25; 12, $26. When queens are wanted with pound packages, add queens at prices quoted above. Five per cent discount on all orders received before February 1. I guarantee safe arrival and perfect satisfaction.

S. D. CHEATHAM,
Route No. 4, Greenville, Ala.

**YOUR PERPLEXING QUESTION** will undoubtedly be answered in the new bee book, "Dr. Miller's Thousand Answers." For beginner and veteran alike. Not intended to replace other bee books, but to supplement them. Price, postpaid, $1.25, or with the American Bee Journal one year, both $1.75.

**American Bee Journal, Hamilton, Ill.**

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases**.

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wisconsin**

---

**EARLY ORDER DISCOUNTS WILL**

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

---

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF

# BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

## CHAS. MONDENG

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

---

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

---

## FREEMAN'S FARMER

**North Yakima, Wash.**

**Successor to Northwest Farm and Home**
**69 YEARS OLD**

If you want a descriptive and agricultural magazine, it will inform you all about the methods in the Pacific Northwest.
Send One Dollar and have the magazine sent for one year. Cut rate of one-half price now on.

---

## ORDER YOUR

# BEE SUPPLIES

## EARLY

**We want you to have our catalogue. Send for one.**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

---

## QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

---

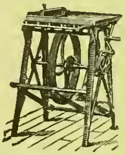
### Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4.25; doz., $8.00; select tested, $1.25.
Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.
My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk. No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

---

# BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in cap, 100 honey-racks, 600 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog aud price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# SPRING IS HERE

BEES HAVE WINTERED BETTER THAN WAS EXPECTED—CONSIDERING THE SEVERE WINTER IN THE NORTH. THE OUTLOOK IS VERY BRIGHT FOR A BIG HONEY CROP. PLACE YOUR ORDER FOR SUPPLIES WHILE THERE IS STILL TIME TO GET THEM.

**ROOT HIVES** The kind with the durable metal Cover. Standard thruout the world. Famous for their accuracy and completeness.

**ROOT SECTIONS** Made with a shear-cut V-groove. Fold without breaking. Highly polished. Cut from clear, white basswood.

**ROOT EXTRACTORS** Easiest running—Slip gear device—Friction drive for power.

**ROOT FOUNDATION** Made on machines of our own manufacture. We made the machines for every maker of Comb Foundation in the world.

**ROOT SMOKERS** Most economical—Easiest to operate—Last longest.

**ROOT VEILS** Made of best materials—Most easily adjusted—Fit every requirement.

ORDER NOW. YOU HAVEN'T A DAY TO SPARE, IF YOU WOULD BE SURE OF GETTING YOUR SUPPLIES.

**The A. I. Root Co., Medina, Ohio**

New York Philadelphia Chicago Norfolk San Francisco Los Angeles
St. Paul Indianapolis Syracuse

If in need of Sugar for Spring feeding, write us at Medina. We may be able to help you.

# A Beekeeper's Letter, Dated May, 1917

". . . . . .a large dealer in the south recently told me that many beekeepers are asking for cypress hives and saying that they do not want anything else. This is so often the case that nearly all the supply dealers are now listing cypress as well as. . . . . . .

I recently bought several hundred dollars worth of hives for my personal use from a firm which has never offered anything in cypress. I insisted on cypress bottoms and they had to be made especially to fill my order. I feel very sure that the use of cypress for bee hives, hive bottoms and hive stands will very largely increase as beekeepers learn more of the non-rot qualities of the all-heart wood of this species, which should be specified in all cases.

Trusting that the above facts may be the means of saving you many future replacements, I am

Very truly yours,"
(Signed)

*NOTE—We omit the name of the competing wood rather than injure it.*

## GET A BOOK = IT IS FREE

There are 42 volumes in the internationally famous Cypress Pocket Library, and each is authoritative in its field, and all are FREE. Vol. 1 is the U. S. Gov't. Report on Cypress—that is a good authority, surely. Vol. 4 is the Barn Book, with plans and specifications for Building. Vol. 36 is the Carpentry Book, making easy a dozen hard jobs of carpentry. Vol. 19 is the Canoe and Boat Book. Vol. 37 is the Silo Book. Vol. 3 is the GREENHOUSE Book. All are free for the asking. Suppose you ask for one or a dozen, right away.

## WORTH INVESTIGATING

This Cypress wood matter is worth investigating. Just write our "All-round Helps Department."

## SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

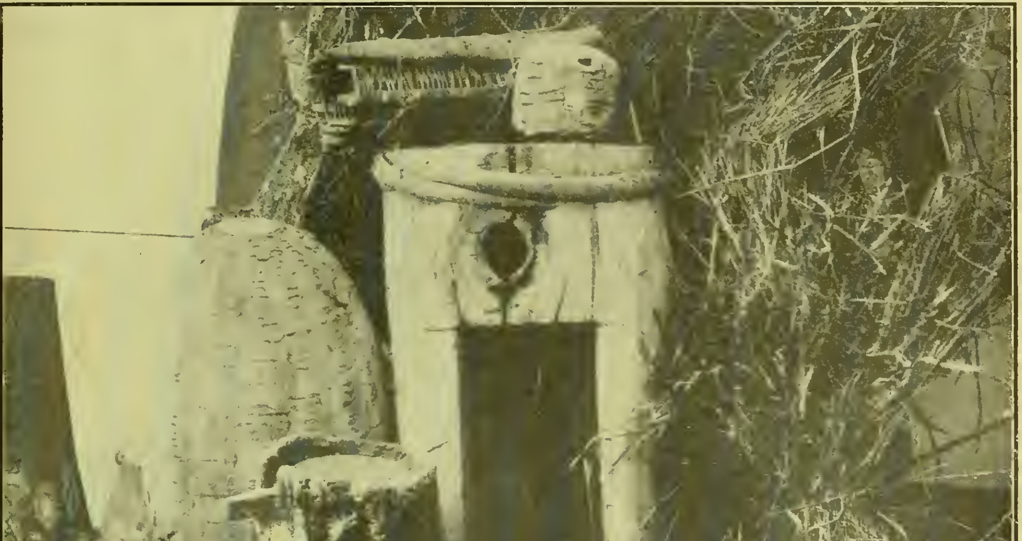
1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

For quick service, address nearest office

# AMERICAN BEE JOURNAL

APRIL, 1918

APR 2 19



Faltering Russia still is in its infancy in beekeeping. Notice the different types of hives above. The evolution of beekeeping is still to come, here. These types of hives are still typical of the Caucasus.

**We offer you even better service than ever before at our new location**

**COME IN AND SEE US**

**Have you received our new catalogue?**

**Write for our 1918 Bee Catalogue now**

# Big Money?—Yes—Read How

If your banker said to you, "Mr. Brown, buy that piece of land next to you at $100 per acre; it will be worth $2,000 per acre this coming summer," would you buy it today, or wait—well, until later on? We are sure you would not delay one moment.

We offer you the same kind of buy—that is, make $20 on each $1 invested. Buy your sections and bee-supplies *now*, for the sections cost less than $1 per hundred, and next summer, when they are filled with honey, they will be worth $20—think of it, those same sections that you bought for $1. The same holds good on other supplies. ORDER NOW and tell your neighbors the same, or Mr. Railroad Embargo "will buy that piece of land next to you and you'll be left."

### OLD COMB

Ship your old comb and cappings to us for rendering. We charge you 5c per lb. for the wax rendered and pay you the highest market price.

### WAX AND HONEY

We always buy Comb and Extracted Honey, as well as Beeswax, so when you have the above to offer, write us and you will be well pleased.

## Four Reasons for Our Success

**Honesty**

**Quality**

### LEWIS'S BEEWARE

If you have used LEWIS'S BEEWARE you know the quality; if not, this is just the time to invest your money where the results are lasting.

*"Made Like Furniture."*

**Price**

**Service**

**DADANT'S famous Foundation**

**THE FRED W. MUTH CO.**

Pearl and Walnut Streets
CINCINNATI, OHIO

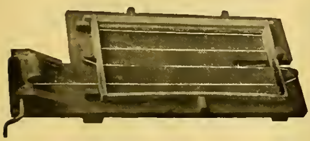
"QUALITY COUNTS WITH US"

**ROOT'S Smokers and Extractors**

## New York and New England

Distributors of Lewis Beeware and Dadant's Foundation. We are located on the New York Central, West Shore, Pennsylvania Railroads and Rochester-Syracuse Electric Line. And all Express Companies. Let us quote you on your requirements and mail you our 1918 Catalogue. Also our Beginners' Book.

**The Deroy Taylor Co.**
**NEWARK, N. Y.**



PATENTED
**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2.50, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calif.**

BUY

## THE FAMOUS DAVIS GOLDENS

**And get big yields from gentle bees. Write for Circular and Price List.**

**BEN G. DAVIS,**
**Spring Hill, Tennessee.**

**Don't Stop Advertising**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
NATURE'S OWN SWEET—AIDS DIGESTION

Price of 1,000 gummed, 85c.

**American Bee Journal, Hamilton, Illinois**

## BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

**Bee Hives and Supplies of All Kinds**

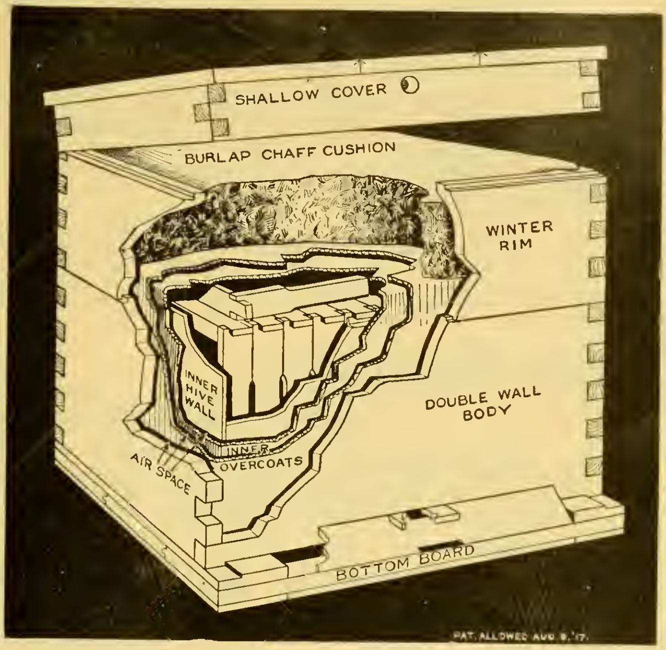
Discount for early orders. Book on how to handle bees, 27c by mail Instructive catalog free.

**J. W. ROUSE, Mexico, Mo.**

# WINTER PROBLEM SOLVED
BY
# Woodman's Improved Protection Hive

**"THE HIVE WITH AN INNER OVERCOAT"**

**100% Perfect Protection by Tests, Winters of 1916-17-18**



## The Inner Overcoat Did It

Without any special preparation we have wintered bees in these hives without loss. It is a joy to see the condition they are in, when compared with other styles of hives and wintering methods. The INNER OVERCOAT is telescoped down over the brood nest, in between the outer and inner hive walls, when preparing them for winter. In the spring it is removed and stored away in the K. D. flat. Not more than two minutes are required to pack or unpack a hive by this method. The INNER OVERCOAT affords more protection than several inches of ordinary packing material. Send for a special circular showing 10 large illustrations.

## Tin Honey Packages

SIXTY-POUND CANS, in cases or in bulk, are being sold by us at prices considerably below general market prices. Send us an estimate of your requirements and let us quote prices.

FRICTION TOP PAILS, any size furnished, and in quantities as you may desire. Send us a list of your requirements and let us quote prices, as we can save you money. The tin can factories are rushed with orders, the tin plate situation is serious and transportation slow, so it will be wise to place your orders early.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

## "Falcon"

**THINGS THAT ARE NECESSARY FOR YOUR APIARY**

1. There must be a good location for the apiary.
2. Queens must be healthy and vigorous to put life into the hives. (Our queens are the best to be had and at reasonable prices.)
3 Your bees cannot do the work they should if you do not give them the best with which to work. If they have ample storage space, if they can work all the time without slack motion, they will be more contented and swarmless. To accomplish this, you must give them ample storage space, that is, the **RIGHT HIVES AND SUPPLIES. "Falcon"**

Beekeepers should be placing their orders early for their early needs. He who waits is apt to suffer. These late beekeepers who want their goods in such a hurry at the last minute will lose some of the honey crop by not furnishing their bees with ample storing space. Railroad embargoes and rush business make deliveries slow.

Our famous **"Falcon"** supplies will please you. Do not wait. Order now and strike while the iron is hot. **"Falcon"** means the best, the standard of perfection. Red Catalog and Simplified Beekeeping upon request. Dealers everywhere.

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Good Beehives Come From**

## Bee Supplies Bee Supplies

**READ — ORDER EARLY**

Owing to the congestion of freight and embargoes, we caution all beekeepers to get their order in early, otherwise you will suffer a great loss when you actually need goods, and you perhaps will be unable to get them for the above reasons. We have a large stock on hand, and can fill orders promptly, provided the railroads will accept freight.

*Send for our new catalog.*

**C. H. W. Weber & Company**
**2146 Central Ave. Cincinnati, Ohio**

## TENNESSEE-BRED QUEENS

**46 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Aug. 1* | | | *Aug. 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested ......... | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $13.50 | $1.00 | $ 5.00 | $ 9.00 | $ .80 | $ 4.50 | $ 8.50 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 | 1.10 | 6.00 | 10.50 |
| Tested ................ | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 | 1.50 | 8.00 | 15.00 |
| Select Tested ... | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 | 2.00 | 11.00 | 18.00 |

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

**WESTERN BEEKEEPERS!**

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**BULBS** 50 High Grade Flowering Bulbs, Oxalis, Begonia, Gloxinia, Gladiolus, other kinds; also 50 kinds Flower Seeds; postpaid. **25c**

**Old Homestead Nursery Co., Round Pond, Maine**

**BEEKEEPER'S SUPPLIES**

**HIVES . FRAMES**
**FOUNDATION . ETC.**

**The Tillson Company, Ltd.**
**Tillsonburg, Ontario, Canada**

# The Proof *of the* Pudding

**Riverside Farm and Bee Apiary**
G. A. BARBISCH, PROP.
HIGHEST GRADE EXTRACTED HONEY
R. 1 LaCrescent, Minn. 191

Dadant & Sons,
Hamilton, Illinois.

Gentlemen:

Have shipped you today, by freight prepaid, 82 pounds of No. 1 Quality Yellow Beeswax. Enclosed find bill of lading. Please work same into medium brood foundation, pack in 3 or 5 lb. paper cartons and ship by freight to Mound Prairie, my nearest freight office. Let me know at once how much the charges are and I will send check by return mail.

Wish to tell you that Dadant's Foundation is far ahead of any other kind I ever tried; no trouble to get bees to accept it and make into beautiful combs. You surely hit the nail on the head when you say it excels. Hereafter, as long as I can get Dadant's Foundation, I shall use no other kind.

G. A. BARBISCH,
Mound Prairie, Houston Co., Minn.

Feb. 20/18.

*When ordering of your dealer, insist on Dadant's Foundation. If he hasn't it, order from us.*

**DADANT & SONS**
*HAMILTON, ILLINOIS*

# Produce More Honey

## FOR WAR FOOD

## A Glorious Opportunity for Beekeeping

**NEVER BEFORE** has beekeeping had such an opportunity to prove its usefulness. Beekeeping is the only means of saving the tons of honey now wasted. Every beekeeper must help, but the commercial producers can do most.

**WHAT DOES IT MEAN** when beekeepers are permitted to buy sugar during a sugar shortage in order that their bees may not starve? **Why** do the beekeeping supply factories run on fuelless days? Honey is an important food.

## More Honey is Needed

There must be an increase in the production of all foods, but the shortage of sweets is especially acute. There must be more Honey.

**HOW CAN IT BE PRODUCED?** The Nectar supply of 1918 is still uncertain. However, a failure of the crop is more frequent than a failure of the nectar supply. The beekeeper must have his bees ready to get all the Nectar.

**NOW IS THE CRITICAL TIME.** The good beekeeper does two things:

He has colonies strong before the honey-flow.
He prevents swarming by division.

**THE GREATEST LOSS** is through failure to have bees ready on time. **Now** is the time to begin plans and preparations for the honey-flow. Delay may decrease the crop one-half.

**WHAT BEES NEED.** To reach maximum strength early, bees need only three things:

Plenty of stores.
Plenty of room for breeding.
Plenty of protection from cold and wind.

Most beekeeping failures are due to neglect in preparation for the honey-flow. Each colony should have ten frames of brood when it begins.

**OTHER PREPARATIONS.** Buy or lease unproductive colonies. There may be a thousand in your county. Order necessary supplies at once. Watch for brood diseases this summer.

**MARKET** the crop intelligently, after studying the bulletins of the Bureau of Markets.

## Keep More Bees

**Can the Department Help You?** There are several offices in the Department of Agriculture which are anxious to help beekeepers increase their honey crops this year. There are in many of the States, Inspectors and Extension Beekeepers who are at your service. The Department can tell you who they are.

## Keep Bees Better

If your bees are unproductive, place them in the hands of a good beekeeper and let them do their share.

**U. S. DEPARTMENT OF AGRICULTURE**
WASHINGTON, D. C.

[ This space donated by The G. B. Lewis Co., Makers of Beeware, Watertown, Wisconsin ]

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 4 HAMILTON, ILL., APRIL, 1918 MONTHLY, $1.00 A YEAR

# THE EVOLUTION OF THE BEEHIVE

## The First of a Series of Articles Showing the Development of Hive Construction Since 1780

BY THE EDITOR

ALTHOUGH nothing is so important in beekeeping as the bee itself, the beehive and its ease of manipulation are next.

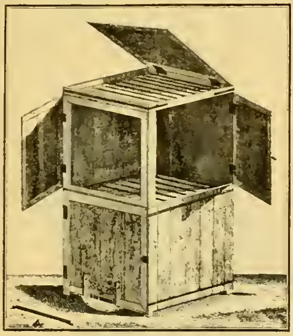
Bee economy was a closed book and the most important facts of bee physiology were unknown until a little over a century ago. The trunks of trees and hollow caves were the abodes of the bees. Swarms were hived in "skeps" made of rushes, osier, straw, clay, earthen ware and logs split and hollowed out. The Caucasian views of apiaries so kindly sent to us by the Caucasian Beekeepers' Association, of which we have already published several, are very good illustrations of the various receptacles used for bees.

As observers noticed that the bees built their combs side by side, the idea was evolved to have them built on separate racks or frames for the easier removal of a part of the contents.

If we tried to tell our readers just when the first progressive changes were made in beehives we would probably deceive them unwittingly, for improvements were made, from time to time, and abandoned, to be again resumed later in better and more practical form.

We can probably best interest our readers by giving them copies of actual improvements made about 130 years ago. We have in our possession a three-volume "Complete Treatise on Bees" by L' Abbe Della Rocca, Vicar-general at Syra, one of the Cyclades, an island in the Mediterranean. His book bears the date of 1790.

Plate 1 shows a house apiary, built of stone, with straw roof. The hives, 6 of clay and 2 of wood, are inserted into the structure and project through to the other side. The clay hives show their posterior end, closed by an earthen disk. The wooden show their front, with entrances of metallic plates perforated for the egress of the bees. In order to harvest the honey from these hives commodiously, it was necessary that the combs be built crosswise. Then by the removal of the disks or of the rear plank, the combs containing honey could be cut out with the knife shown at fig. 10, plate 2. This knife or chisel is made with a curve on one end and a straight edge on the other. In order not to crush the bees, when drawing out the combs, a rounded frame, fig. 11, was used on which to drop the combs of honey. The bees could then be brushed off both sides before putting the comb into a jar.


The Improved Slat Hive devised by L'Abbe Della Rocca

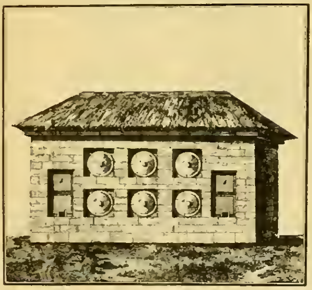


Plate 1. A House Apiary built of stone, with straw roof

Figs. 4 and 5 show methods of supporting pieces of combs within the hives in the proper position to form a guide for the bees to start their building. The little fork was fastened upright and removed as soon as the guide was sufficiently built in by the wax-workers. The author very judiciously remarks that the rounded foot of the other support, fig. 5, was not well adapted to use in a circular earthen hive, and advises the making of square supports. Later he manufactured a support for three "bait combs" an inch and a half apart from center to center.

Fig. 1 will be recognized by our readers as intended to exhibit worker, drone and queen brood. If this cut is quite crude, we must remember that it was made over 120 years ago, when printing and engraving were far from their present artistic condition. However, if we could now teach those artists some valuable improvements, they could still show us how to bind books properly. This edition, bound in calf, is still prettier and more lasting than books bound at great expense forty years ago.

Fig. 6 represents a small tree limb

used in hiving swarms. A few bees were made to alight upon it, by shaking them gently from the main swarm. Then, after removing the limb to which the swarm hung, this was hung in its place and the returning bees were easily carried to the hive to join their sisters. Or the limb was used for the swarm to settle upon, by shaking the bees from the limb on which they hung and covering the latter with a shield or a cloth. Figures 7 and 8 were "swarm catchers," though a little heavier than the metal frames of the present day. Fig. 9 represents a hook to draw down the limbs on which the swarms might be hanging. Fig. 2 represents an earthen hive, one foot high and 2 feet long, with, at one end, a wooden disk notched for the passage of the bees; at the other end an earthen disk, to be removed only when wanting to take away the honey. Fig. 3 represents a similar disk with entrances for the bees. Fig. 12 shows the Della Rocca clay bee-smoker. Hot coals and fuel were supplied at the big end and the smoke expelled at the little end. Small holes at the bottom furnished air for the combustion of the fuel. The author remarked that this instrument was "more proper than any other, to smoke bees." Fig. 13 exhibits a small straw skep to be used in hiving bees.

The next plate shows the improved slat hive devised by L'Abbe Della Rocca. And, by the way, let us say that he considered as proper the distance between combs of an inch and a half from center to center, for his frame supports were placed at that distance.

From time to time we will give our readers more facts on the "evolution of the beehive."

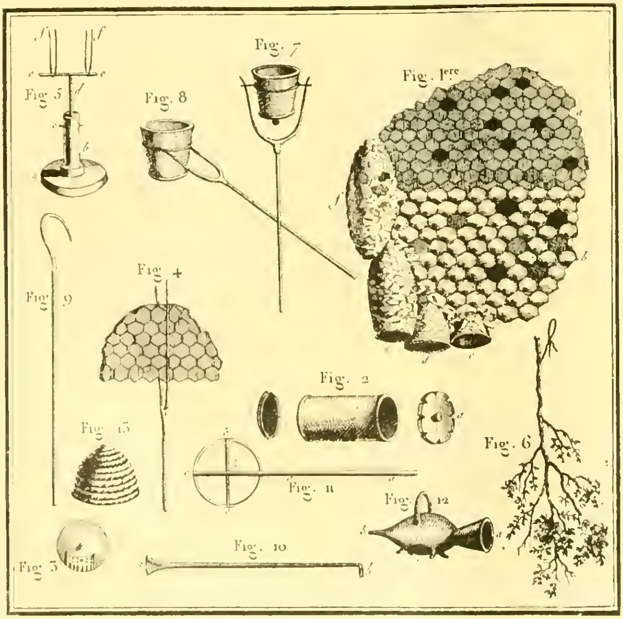


Plate 2. Some of the implements used for beekeeping in olden times. Notice, at Fig. 12, the bee smoker

---

## Sugar Shortage is Honey's Opportunity

By Chilton Gano.

If there has been, since the United States entered the war, one reaction of the country's business that has been more noticeable than any others, it has surely been the effort of every kind of business to adjust itself to war-time conditions—to find the silver lining of the war cloud.

For instance, no sooner had the Government asked the co-operation of housewives in conserving animal fats and dairy products than every manufacturer of vegetable cooking and salad oils began to push his products more aggressively than ever before. Nobody knew who or what 'Mazola" was, in February, though it had been on the market for three years. But the Government edict was surely the proper signal for the Corn Products Company to lift this product into the limelight. They did so with a national newspaper campaign. Results were so tremendous that the company has had to double the capacity of its Argo refinery, which was already the largest of its kind in the world, to supply the new demand for this cooking and salad oil.

Later came the sugar crisis, and this same company saw another big opportunity for increasing its corn syrup business, urging corn syrup as a substitute for cane sugar. Karo has long been advertised in a big way, but probably never at so great an expense as today, when full-page advertisements are being run in newspapers all over the country.

These are only two of many scores of food campaigns which have dovetailed their appeal with that of Mr. Hoover and have proved through their great successes that such patriotic appeals are the strongest that could possibly be made to Americans at this time.

### Honey's Opportunity

The writer has written several articles for the American Bee Journal on the possibilities that lie in co-operative national advertising of honey by beekeepers. But, of course, most thorough national organization of the industry would have to be the first step, and to urge national advertising as an immediate step would be highly impracticable for that reason alone. It would also be impracticable, probably, for several other reasons, the primary one being that national advertising of honey at this time would create a bigger demand for the product than could possibly be filled.

Yet every beekeeper must be fully awake to the remarkable opportunity afforded by the sugar crisis. Every beekeeper must realize that there never was a better time for honey to come into its own than right now. There never was a time, and probably never will be again, after this war is over, when a public demand for sugar substitutes will be so imperious. Surely the beekeepers will hardly feel like sitting back and doing nothing while the raisin growers are shouting from the housetops of the fruit sugar in raisins and the corn syrup people are telling in huge advertisements of the food calories in corn syrup. Every sugar substitute will surely make the most of the opportunity. Honey must surely do so, too. For there are many food experts who state that honey is the most wholesome sweet of all, and much to be preferred to sugar.

The common sense of the people will lead them to turn to honey, in a limited degree, and the honey market is no doubt today a bull market. But the American people have become an advertisement-led people. No really great movement on their part in favor of any commodity can be expected unless it is definitely engineered by the producers of the product.

### What to Do

What has been said now calls for a constructive suggestion, though it has no doubt set the reader to thinking along constructive lines. The writer's suggestion would be that honey producers do all in their power to increase their production of honey to the highest possible maximum. There is no telling how long the war will last or how much more acute the sugar shortage may become.

But increasing of production will be only half the battle, if it is successful in a marked degree. It will then be necessary to increase the public demand for honey. Under conditions such as now prevail this increasing of demand will be the simplest matter imaginable. It will not call for national advertising, but it will call for some sort of advertising, sorts that have been done already to some extent, for instance, and even more ambitious local campaigns.

Let us suppose, for example, that members of such an organization as the Colorado Honey Producers' Association set to work and doubled their output, and that, on trying to market it in the usual way they found that yields had also been increased in many sections and the market was dull. With their organization it would be a very simple matter to assess the members a small amount per case of honey and to do a little newspaper advertising in Denver. Remember, honey is not a generally used product. It is treated more like fruit or candy than like a staple. A recent article in the American Bee Journal stated that it ought to be easy to double the consumption of honey in this country. But that is a very conservative estimate of what could be done for honey with the right kind of advertising. Especially at this time a very modest campaign in Denver should easily quadruple that city's consumption of honey. How many housewives know more than two or three ways of using honey? Yet a Department of Agriculture Bulletin gives 55 different uses for honey in the home, and every one of them would appeal to the patriotic housewife desirous of conserving the sugar supply. They would also appeal to the palates of herself and her family.

What has been supposed in the case of the Colorado organization would be almost as easily accomplishable by any county, sectional, or State beekeepers' association. It might be a little outside of the regular routine of such association, but war times call for unusual decisions. Many of the existing associations—and no doubt associations exist in nearly every State—have already among their objects the influencing of market conditions. One of the objects of the Western New York Honey Producers' Association is given as "to promote the most modern methods of packing and marketing its products."

Again, the Chicago Northwestern Beekeepers' Association, at its 1917 convention, passed a resolution urging the greater advertising of honey as a food.

Such campaigns in selected cities or sections can be put on very quickly, especially if handled through an advertising agency. Such agencies are to be found in all fair-sized cities. They have the facilities for prompt action, know how to make the appeal, and attend to practically all the details. Their services cost next to nothing also, as the publications allow the agencies a fixed percentage of the cost of the advertising space, as they find it most convenient to handle business coming from experienced agencies.

Appetizing copy, accompanied by a recipe book offer, could not fail of the desired result. And the plan has the double virtue of both promoting a great national industry and serving a truly patriotic purpose. The effects of such work would be lasting—permanently salutary to the industry. New users of honey would continue to be users for the rest of their lives, and the effect of the marketing cooperation on the associations would be to concentrate their attention on the possibilities in co-operative marketing, with the result that permanent marketing programs like that of the Colorado organization would be adopted.

Chicago, Ill.

## Faults of the Express Companies

By J. F. Archdekin

ALLOW me, in the first place, to say that the express companies of the United States, as they are at present operated, are one of the greatest impositions that the people put up with. It is to be hoped by everyone that the time is at hand when this really useless and at the same time indispensable organization will be put out of business and supplanted by a special form of parcel post. There is absolutely no excuse for the existence of the express companies since the usefulness of the parcel post has been demonstrated.

In view of the urgent need for the people to economize, I feel that this is a form of waste that can and should be eliminated as soon as possible, that it is a form of waste is plain to anyone who has had much dealing with the express companies. Especially do the shippers of pound packages of bees understand this.

A package of bees should be sent by the shortest and most direct route between the point of origin and the point of destination, and should not be subject to delays at transfer points. In a word, bees should be treated as perishable property, which they are, and handled accordingly.

Instead of this, the company receiving the shipment will endeavor to transfer it over its own lines as far as possible. This is done in order that the receiving company may get the largest share of the charges. By this means shipments are frequently carried hundreds of miles off the direct route, delayed at transfer points and only turned over to another line after the receiving company has carried them as near to the destination as it can, if the destination is on another line. Especially is this true in the case of a long haul.

Then there is the carelessness of the express employees and their utter disregard of instructions on the packages.

A railroad depot platform would not appear natural were it not for the express trucks piled high with packages waiting for a particular train. These trucks will often stand for hours, or perhaps all day, in the glaring sun and woe be it to any luckless shipments of bees that are on that truck. It is the most heartless thing that can be imagined and it is the death of countless bees and the cause of numerous disappointments. By the direct point of origin to point of destination route most of these difficulties could be overcome.

The express men seem to regard packages and other matter which they handle as they would deadly enemies with whom they are engaged in mortal combat. This frame of mind, in the case of bee shipments, has a tendency to reduce them to junk.

Shipments which are injured by rough handling and leaking bees are probably kicked out of the car door after the train pulls out. Such shipments are known as "lost," and after a complaint from the customer and some more time passed by, a second shipment is sent out. These are some of the perplexities of the package man versus the express companies.

Evolution in beekeeping may still be practiced in modern times. Notice the two split-log hives, with entrance at the end. There are many of these in Russia

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
First Nat'l Bank Bldg., Hamilton, Ill.

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS.—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which show that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C. P. Dadant.)

# *THE EDITOR'S VIEWPOINT*

## Boosting Honey Production

An eight-page pamphlet has been issued by the Department of Agriculture at Washington giving the situation of honey in the "Agricultural Situation of 1918."

Now, if ever, we beekeepers should strain ourselves to the utmost to increase the output of honey. It will act as a supplement to sugar in these times of sugar scarcity.

The booklet rightly points out that myriads of pounds of honey go to waste in parts of the United States in flowers scarcely visited by bees, and that the expansion of beekeeping to take up a part of this waste will be a net gain to humanity.

Our production of honey at present is in the neighborhood of 250,000,000 pounds annually, or only about 2½ pounds for each man, woman and child in the country.

Copies of this booklet may be obtained by asking for part 4, Circular 87, of the Department of Agriculture, Washington, D. C.

## The Bee and Queen Situation

Never before has there been such a demand for bees and queens at this season of the year. Queen breeders are in many instances having to turn down some large orders so as to be able to take care of the ordinary trade.

To offset this, however, the season is much more promising with queen breeders than a year ago. Bees seem to be in excellent shape in the southeast and honey is coming in sufficiently to incite egg laying so that colonies are fast becoming populous. The only section which cannot show favorably in queen breeding is Texas, which has been hard hit in the past two years, so that some of her breeders have discontinued the business entirely. Fortunately, this condition does not exist over the whole State, and many of the breeders are already getting in shape to fill orders as before.

There is, however, one source of bees which we think is too little considered by the beekeeper who wants to increase, and that is the unproductive bees in his own neighborhood, or at least in his surrounding country. There are thousands of colonies in the country today which yield hardly a pound of surplus from one season to the other. They have no attention and in many instances are allowed to "swarm themselves away" by their owners who quite frequently think that the zenith of beekeeping is to have many swarms.

Now is your chance to buy up many of these colonies and make them produce. If bought early and gotten in condition during fruit bloom, they will in many instances more than pay for themselves and your trouble the first honey flow.

## Practical Queen-rearing

Mr. Frank C. Pellett has just finished a new book entitled "Practical Queen Rearing." As its name implies, this book is for the practical beekeeper who expects to rear some of his own queens, but it will be found of use to the experienced queen-breeder as well.

Through his numerous visits to beekeepers of note, and to practically all the larger queen-breeders in the South, Mr. Pellett has picked up variations of different plans of breeding queens, all of which have a significant value and may suit in turn many individual beekeepers.

Besides this, of course, he gives the standard methods of queen-rearing, in concise form. The Doolittle, Swarthmore, Miller and other methods are all explained. This new book, which is now in the press, will contain over 100 pages and will be cloth bound, with many cuts from original photographs. It is to sell for $1.00 postpaid, and should be ready for delivery by the time this issue of the American Bee Journal is in the mails.

## Bibliography

Several interesting bulletins are upon our desk. Among them we find the following:

"Insect Pollination of Timberline Flowers in Colorado," by L. A. Kenoyer. Professor Kenoyer has inspected flowers above the tree line in the Colorado mountains and found many insects upon the blossoms. He mentions a number of plants and of insects which would interest the students. His conclusions are that flowers above the timber line are as much visited by insects as those of lower altitudes.

"The Weather and Honey Production," by the same author. It was through the records made by J. L. Strong, of Clarinda, Iowa, during 29 years of meteorological data and weights of a hive of bees daily, that Mr. Kenoyer secured this most interesting information. His conclusions confirm the opinion current among old beekeepers, that rather abundant rain is favorable for large honey production; that south winds are apparently more favorable than winds from any other direction, that the clear days just preceding a rain show greater increase than the days immediately following. He also confirms our opinion, based on past experience, that "a winter of heavy snowfall is, in the great majority of cases, followed by a large honey yield." This, we believe, is due to the melting snow soaking the ground more thoroughly than spring rains.

"Environment Influences on Nectar Secretion," by the same writer. This is a very learned dissertation on the subject of nectar secretion, the writer quoting 28 other experimenters and students. A review of it would be difficult. Let us mention only two important points: "The optimum condition for sugar secretion is an alternation of low and high temperatures. The more favorable all conditions for growth and the more vigorous the plant, the greater is the amount of sugar secreted." This is probably why we have greater crops of white clover honey when this plant sows itself again in our pastures, after several years of scarcity.

The above three contributions show Professor Kenoyer to be a careful observer and a methodical student. We may look for more of this useful work from him in the future.

### Dirty Water Cause of Disease

In our interesting contemporary bee weekly, the British Bee Journal, we find a suggestion by Dr. A. Z. Abushady, worth quoting:

"If Nosema Apis is the real offender (in Isle of Wight disease), and if it is true that it has very resisting spores, which are often present in stagnant pools, etc., two questions at once arise. The first is a thorough testing of all the known modern non-toxic antiseptics that seem suitable to use in the apiary, with the view of determining the least noxious and the most effective one in dealing with this offender. The other is to consider the improvement of the water supply to the bees. It is useless to be content with giving advice regarding the cleanliness of the apiary and the use of a clean water fountain when every observant beekeeper will honestly testify to the fact that the bees will reject the fountain water, even if warm, in preference to that from a heap of manure. I have rarely seen any of my bees calling at the water fountain in my garden, though placed in a conspicuous position; yet I have repeatedly noticed many of them go to the roof of the gutter, presumably to drink from the rain water. I cannot believe that it is a difficult contrivance to give the bees their pure water supply inside the hive itself. When I make this suggestion, and many others, I trust I may be pardoned by those conservatives who never believe in new methods; for I might be led astray by the progressive spirit of my profession, which is always in a revolutionary state."

We know that bees do drink from fountains of pure water, but we also know that they often drink water "from a heap of manure." Whether this has anything to do with some of the diseases of the adult bee is a matter that may require investigation. Constipation, paralysis, May disease and Isle of Wight disease, which do only occasional harm in this country, are still in the domain of the unknown, though some of our friends are sure that they are due solely to soured honey or pollen. And why not give the bees water in the hive? We might save many an adult from being chilled in cool spring days.

### Drone Comb in the Hive

Remember that if you do not wish an excess of drones in your hives, April and May are the months in which the drone combs may best be removed, throughout all the northern part of our country. Remember that if you cut out drone comb and do not replace it with worker comb or comb foundation, the bees are likely to build drone comb again in the same spot.

Remember that it costs as much to rear 3 drones as it costs to rear 5 workers. The workers produce honey while the drones consume it. Rear your drones only in colonies which you consider as good breeders. You cannot entirely prevent the rearing of drones in undesirable colonies but you can greatly curtail their production. The difference in honey spent in producing 2,000 drones instead of 200, per colony, would pay the cost of supplying the bees with worker combs, over and over, every year. If you fail to attend to this, you are neglecting a 100% investment.

Beheading drone brood to destroy it, is equal to killing the rats after they have made holes all through your sack of flour. It is better than letting them live, but after the bees have cleaned out this dead brood the queen will fill the comb all over again with brood, unless the workers can get ahead of her and fill the combs with honey.

### Treating Bee-Diseases With Drugs

It seems quite the natural thing for the inexperienced beekeeper to think there should be some drug that might be advantageously used in the treatment of diseases that affect bees and their brood. Indeed success has been from time to time claimed for many different drugs, especially in England and on the European continent. Although one after another they may sink into disuse, new candidates are constantly appearing. In the latest British Bee Journal to hand is found advertised "Naphthaforma Tablets, the Germ-killing Remedy for Foulbrood"; also "Bacterol, the Successful Cure for 'Isle of Wight' Disease." Another advertisement says, " Izal, the Modern High-power Germicide, is a reliable remedy against Foulbrood and Isle of Wight Disease." Flavine is the latest, which is mentioned as "gaining friends." Yet, when one reads from time to time in the same journal of the somewhat hopeless struggle against disease, it doesn't look as if the drugs mentioned had been very efficacious.

For some reason, less faith has been put in drug treatment on this side of the water, and among American beekeepers of experience it seems a general belief that no drug exists powerful enough to affect the disease and at the same time prove harmless to bees and brood. It might be presumptuous to say such a drug never will be found; yet in the light of the past it is pretty safe to advise the inexperienced to waste no time in trying drugs, no matter what the claims for them may be.

### Sugar Arrangements for Illinois

We wrote a letter a few days ago to the Illinois Department of Food Administration asking if it were not possible to facilitate the getting of sugar by the beekeepers of the State when local grocers were slow in allowing sales on the basis of the affidavit, copy of which we gave in our March issue. Their letter follows:

"Referring to your letter of March 11, we beg to advise that some two weeks ago we sent out a general bulletin advising all of our local administrators, situated in 800 townships throughout the State, to give publicity to the fact that beekeepers should be supplied with the necessary amount of sugar required for feeding their bees until the natural feeding season commences. You may therefore take this as your authority to deliver sugar against the affidavits which you have prepared, beginning at once.

"Very truly yours,
"U. S. FOOD ADMINISTRATION.
"Chicago, Ill., Branch."

### Beekeeping for Women

We have in mind to present more material of special interest to the ladies. We have some good things on hand, but want more. If women who keep bees would only write and tell us about their experiences in starting, their successes and their failures, we would be glad. Pictures of their apiaries, equipment, especially to lighten their labor, and other interesting subjects will be welcome.

# On the Supply Maker's Trail---No. 2 Smokers and Uncapping Knives

By Frank C. Pellett.

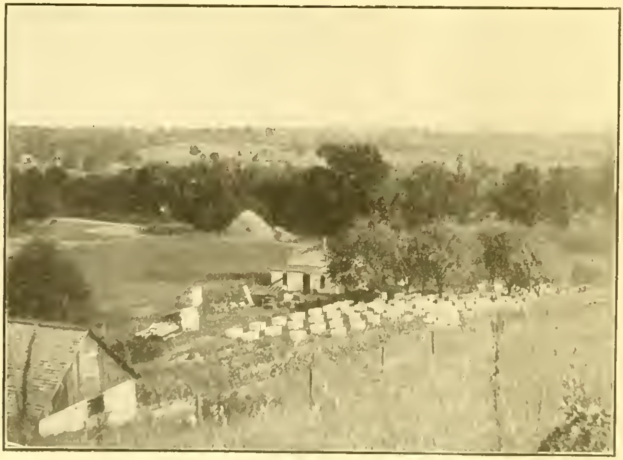
READERS of Uncle Tom's Cabin will remember that Topsy "just grew" and that she had no idea that she ever had any parents. So it was with the Woodman Company, of Michigan, it just grew, also, without any definite intention of establishing a supply house, on the part of its founder. Not only did it grow in the beginning, but it kept on growing, and still continues to grow.

A. G. Woodman was engaged in beekeeping, in combination with fruit growing on a farm near Grand Rapids. He used to start to town before 3 o'clock in the morning, so as to get his load of fruit on the market by the time the first buyers appeared. Whether he was more a fruit grower or a beekeeper would be hard to tell, since he grew up in daily contact with both. As his bee business grew, he found it necessary to buy supplies in quantity, in order to insure that he would always be ready when the honey-flow came. Some of his neighbors were less provident, and made no provision for securing supplies until they were urgently needed. They soon found that Woodman always had them on hand anyway, and that he never refused to meet their urgent needs. He soon found that nearby beekeepers were looking to him for supplies, and increased the amount of his orders. Every year the number of his customers increased, until he began to get small orders from other towns. Thus it was that the Woodman Company "just grew," without special effort on the part of anybody.

It was not long until the barn on the farm was no longer big enough for a warehouse, and it was too much of a task to haul all the supplies out to the farm, repack them for shipment, and take them back to town to the freight depot. It accordingly became necessary to choose between his farming and going to town. Woodman was a farm boy who had married a farm girl; they were doing well with their fruit and bees and liked the life. The problem, however, was what to do with the business which "just grew." Since it had outgrown the farm and had developed with so little effort, there seemed to be no way to get rid of it, so they decided to leave the bees on the farm and take the business to town. It looked much easier to run out to the farm to care for the bees than to keep the supply business in the country, and so it proved.

Once the business had been moved to town it was no longer allowed to "just grow," but it was pushed with all the energy that heretofore had been expended in growing fruit and producing honey. The proprietor decided that the best opportunity in the supply field lay in the pushing of specialties. As a practical beekeeper he had developed a double-walled hive which he named the "Protection Hive." For a time he occupied himself particularly with introducing this hive, which has since become so generally known as to require no description here. Later he offered the section fixer, which has been very generally used for folding, and putting foundation in sections.

When the late T. F. Bingham was ready to retire he selected Woodman as the man to continue the manufacture of Bingham smokers and knives, which are known among beekeepers the world over. Mr. Bingham made the first really practical bee-smoker in 1878, and, although it has been improved from time to time, it is still recognized as one of the best in the market.



THE APIARY THAT WOODMAN LEFT ON THE FARM; 250 COLONIES IN PROTECTION HIVES.

A. G. WOODMAN STILL LIKES TO GET OUT TO THE ORCHARD AS WELL AS TO THE APIARY.

When a fellow buys a bee-smoker he gets a good deal for his money. If we stop for a moment to think how much we owe to the smoker, we will appreciate what Bingham and those who came after have done for us. By its use we can control the bees so nicely, that the necessity for veil and gloves is done away with at certain times. We not only are able to work with more comfort and satisfaction, but an immense amount of time is saved, because we can control conditions within the hive. Hundreds of bees are saved, which would be crushed in spite of our utmost care. If one will try to work without the smoker for only half an hour during the height of the season, he will wonder how it was ever possible to produce honey successfully before its invention. Beekeeping, as we know it now, was not possible prior to the invention of the smoker and a few other contrivances which were developed at about the same time.

Then the cost of the smoker is insignificant, entirely out of proportion to its importance in the apiary. If they cost ten dollars each instead of a dollar, we would have to buy them. Yes, if they cost twenty dollars, I am sure that no commercial honey producer would do without one. If we take time to look one over carefully, we will wonder how it is possible to make it and sell it so cheaply. The price is accounted for by the fact of its universal use. Any article can be made at a low price if there is a demand for enough of them. Each of the pieces that enter into the finished article is made by hundreds and even thousands. The legs are stamped out of sheet metal faster than one can count. Another machine stamps out the metal just the right size to make the barrel. Another operation punches the holes where the legs are to be attached, and the grates are cut out by a die in a similar manner. Each machine cuts out its particular part, and enough of these parts to make hundreds of smokers are turned out in an hour's time. When the parts come to the man who is to assemble them, he begins by picking up the flat sheet of metal that is to compose the barrel. By feeding it between rollers it comes out the right shape. The bottoms are then crimped on and other parts attached, one after another. With every part cut to fit, a skilled man can turn out the finished smokers very rapidly. Unless one has given a thought to the number of beekeepers who must have these implements, the size of the shipments will amaze him. Here are little packages each containing a single smoker going out to beekeepers in widely separated locations. Here again one finds a box holding half a wagon load, consigned to a dealer. Not long since, I happened to see several of these big boxes of bee-smokers on a depot platform away down in Mississippi. It is because so many other beekeepers are buying tools, at the same time, that the manufacturer can afford to invest the hundreds of dollars in machines necessary to turn them out fast enough to enable them to sell to us at a dollar. Although the maker gets only a few pennies of profit on each smoker, if he can sell enough of them, the total makes a satisfactory business. There never was a time in the history of the world when the price of a day's labor would buy so many useful things as has been the case since the invention of our modern labor-saving machines.

The Bingham uncapping knife has maintained its leadership from the first. The men who make these knives for Woodman now began making them for Bingham more than thirty-five years ago. A certain amount of hand labor is necessary to the making of a good knife. The metal is stamped out the right size by a machine, but it is then ready for the critical operation of finishing, which must be done by hand. Each one of the thousands of these knives that have been turned out every year for a generation, has been examined by the same pair of eyes and ground down to a fine finish on a big stone by the same man, who has continued to turn them out year after year. The steam knife is made in just the same way as the cold knife, with the addition of a copper jacket soldered along the top, to provide a cavity to hold the steam. How much this one man working away in a dingy room has done to lighten the labor of the beekeepers of America, no one can estimate. Without uncapping knives and smokers extracted honey production would be very unsatisfactory, if not impossible.

A. G. WOODMAN VISITING WITH JAY COWERING AT JENISON, MICH.
MR. COWERING HAS 300 COLONIES IN PROTECTION HIVES.

---

## Unsanitary Conditions and Unwholesome Methods Surrounding the Manipulation, Packing and Marketing of Honey

By Emil F. Lein.

ACTION was taken at the last annual meeting of the New York State Association of Beekeepers' Societies to standardize the marketing of section honey and, for sanitary reasons, requiring its encasement in cartons.

Such action, if its execution is ultimately enforced, will inure to the benefit of the beekeeping profession, and is a protection to the consumer, in so far as it shields the combs against dirt, filth and germs from the moment of their encasement in these cartons, but, unfortunately, is no guaranty against prior infection, or contamination of these combs caused under the management of the filthy, careless or indifferent comb-honey producing beekeeper.

Even though the reader has no personal knowledge of unclean and unwholesome conditions pertaining to the handling of honey among beekeepers, let him not assume that they do not exist. A little incident which came under the personal observation of the writer last year may suffice to prove that at least isolated cases of unsanitary conditions may be found of a nature so shocking that if the facts were known by the general public they would not promote the sale of section honey. Many an innocent consumer might hesitate before being tempted again to purchase his favorite sweet in the form of snowy-white and apparently pure combs in sections, without further assurance that the producer had taken care of these combs with at least ordinary regard to cleanliness.

It is not the purpose of this article to injure the sale of comb honey. But regardless of the effect a disclosure of actual conditions might produce, at least the beekeeping fraternity should be aware of them.

We have in mind a visit last autumn to a beekeeper in another locality. Here we were confronted by conditions such as we had never expected to find among beekeepers anywhere. Before our eyes was unfolded a scene which impressed itself upon us indelibly. On a dirty floor, fairly littered with rags, tools, clothing, household articles, etc., in the most chaotic fashion, were scattered several supers filled with white comb honey, one super of which was partly covered with dusty woolen rags on which a cat with a litter of kittens had made her bed. Apparently disturbed by our entry, some of the kittens crawled over several supers, to the distress of their mother.

We shall have no difficulty in pointing out evils fully as great among the producers of extracted honey, most of which have reference to the careless and indifferent handling of the product and others to the undependable methods of packing adopted by them.

Imagine our feelings, after opening the first few cases of a large shipment of so-called "white" honey, upon realizing that we had before us rusty cans, the upper surfaces of which were corroded and covered with filth, intermixed with granulated honey; that a ring of buckwheat honey was plainly visible around the inside of the screw top; that upon unscrewing the caps we again discovered the presence of buckwheat honey on the inner screw thread, indicating that these old cans had previously contained buckwheat honey and without being cleaned had been used for clover honey; imagine our resentment upon discovering that the liners in some caps were so deteriorated by age as to have acquired an unwholesome and repulsive odor; that a number of these cans contained from one to ten dead bees, which floated out first when the liquefied honey was being poured out, and which contained so much sediment that some of it required straining; and last, but not least, that the cans were not marked as to the amount of their contents, but sold upon the basis of containing 60 pounds of honey, and that some of them were short in weight as much as 1¾ pounds!

Now, what would you say if you were told that this shipment of honey had been received from one of the largest producers of extracted honey?

Such management, methods and conditions surrounding the marketing of honey should be checked by federal law, inasmuch as a State law would be only a local remedy and not sufficiently far-reaching unless enacted by all the States.

But even a State law on such a basis would have a salutary effect. Bee inspectors could be required to report violations.

There is absolutely no excuse for marketing dead bees and sediment intermixed with an article sold as pure extracted honey. Neither is there an excuse for placing white honey in cans which are not absolutely clean inside and not free from all traces of buckwheat honey previously packed in them, and selling the article for pure white honey.

While the use of old cans should be permissible, provided they are absolutely clean on the inside, it would seem that their use should not be permitted unless they are also made to appear clean on the outside. With a little cleansing powder and a moist or wet cloth a rusty can may in a little while be given the appearance of a new and clean can.

Unclean cans, be the cans old or new, should not be tolerated, and this restriction should apply also to the outside of the cans.

It is an easy matter to polish rusty cans in fairly good condition. Cans should be free on the outside from all accumulations of honey, dirt and rust. If these are permitted the inference is, and the chances are, that some of the honey poured out will become soiled.

Honey, when properly handled, is a wholesome health food, worthy of a clean container.

Buffalo, N. Y.

---

# The Cycle of Seasons in Different Apiaries---In Florida

By J. J. Wilder.

THERE is no problem in Southern beekeeping so intricate as that of the rounds of seasons in different apiaries for general work.

We might place the word "When?" in front of each of the following phrases and study them a while and be greatly benefited thereby.

When to first examine bees, equalize stores, spread brood, put on supers, expect swarming, take off honey, to expect next flow, to super again, to transfer, re-queen, finally remove supers for winter, prepare for winter, unite, to sell the crop, to take vacation, and other questions, the time of which comes and goes in many apiaries located in different localities.

As the season's cycle revolves the arrow point turns toward these words, one at a time, until its entire round is made.

To undertake a job out of season would mean loss, in most cases, so we must be on the alert to do the things necessary at the proper time.

I have seen bees transferred during winter. I have seen them fed in the spring when this should have been done in early fall. I have seen apiarists go off on vacations and on their return find the bees crowded for storing room. Some leave them in early winter and the forest fires burn them up. I have seen supers put on in the dead of winter, just after the honey-flow and honey removed during winter. Swarming-time overlooked, bees moved in midwinter, completely closed up and suffocated, and combs, honey and bees lost.

The majority of the bees are never examined; stores not equalized; no knowledge of but one honey-flow; supers left on for winter, and many other things done entirely out of season, with results disastrous.

Is it any wonder we fail? Is it any wonder we succeed when we do things at the proper time?

It is easy to be timely in our work, if we only refresh our memory with past experiences, and keep close watch of the bees and the plants as they bloom out in the forest.

It is just a matter of a little application. If we are not expert apiarists and don't do the general apiary work just right, but do it at the proper time, in most cases results will not be so bad, but far worse if done entirely out of season.

It can almost be said of the South that the sources of honey change every ten miles; that entirely different honey plants come in and go out as one passes across the country. So there is no one great source of honey, but, instead, many, many small ones, and as many as five or six of these are found in a single location, coming in bloom from very early spring till late fall.

This fact alone makes it very difficult, or almost impossible, to properly instruct all inquirers or give out definite information for general apiary work that would be proper for all. So we have to deal with every one separately in his own location.

The editors of our bee papers fully realize this peculiar and difficult situation and on account of it are slow to offer information, because it would often be misleading. Only progressive beekeepers scattered around over this great section can give it.

This accounts for the fact that although in the South we have the bulk of the bees of our great country, yet the amount of honey produced is small, and returns very light.

Wilder Apiary in the Balmy South

### Suggestions

Southern Florida.—We may expect a flow here by January 1, mostly from pennyroyal. So bees must be left in the very best of shape at the close of the last flow, which is from goldenrod, early in November. All weak colonies should be united and all headed with good queens. Ready-built comb should be given the bees to store this early honey, for they will not build much comb during its flow. About February 15 this flow stops and the citrus comes. Extract and give combs back for this flow.

About March 10 a little increase may be made, transferring, etc., done. This flow stops the first of May, when all extracting should be done, but not too closely, as the next flow comes about June 1. It is saw palmetto and mango. During this time a little more increase can be made and extra combs can be built. In July cabbage palmetto may yield, giving a light extracting, but at this time plenty of honey must be left in the hives, for the fall flow is a long ways off, which is from goldenrod and a few other fall flowers, but the flow is not certain by any means, and if stores are low bees will go down and only wholesale feeding will save them. So plenty of stores should be left from the saw palmetto flow, which may be later removed if the other flows come.

Jacksonville, Fla., is one-third of the way between the extreme southern point in the State and Washington, D. C. This gives some idea of the length of this narrow strip of land lying between the Atlantic and the Gulf. Florida also extends westward nearly as far in a narrow strip. In this narrow border of country we have just as widely different conditions to contend with.

In the central and eastern sections conditions are similar. Here we have no very early honey-flow, as we are out of the citrus section. The long period of breeding in early spring consumes lots of stores. So the bees must be left very heavy with stores or else they will collapse before the flow comes, which is mostly from saw palmetto and a little gallberry. The bees should be strong here for the main flow, which is never very heavy. But a light flow follows it either from cabbage palmetto or partridge pea. So the honey may be extracted closely from the supers when there is a lot of honey in the broodnest. Apiary work should start here the first of April and increase made in May. After July 15 the bees should be looked after for wintering.

Northern Florida.—The flow comes on here the first of March, in the more watered sections from titi. Here bees need but little stores left on for winter. I have heard beekeepers here say they have never known bees to perish.

Apiary work should begin here in February. Tupelo gum thinly scattered along small streams follows with light yield, also some gallberry. In summer and late fall bees live in a hand to mouth manner.

In flat, wooded sections gallberry gives a good flow in May, and a glimmering flow follows from scattering partridge pea.

The High Sand Ridge Section.—Here the early flow is from chincapin, which comes in April, but this shrub covers only a small area. In other localities gallberry comes in May, but in most parts is not an early honey plant. With these exceptions, the main flow comes in July, from partridge pea. So it is very important to see that bees have plenty of stores for winter, and spring, too; but fortunately the summer farewell gives a flow here until frost, which always leaves bees in good condition for winter.

Another Wilder Apiary

Increase should be made and combs built if posible during chincapin or gallberry flow, so as to make harvest as heavy as possible during the main flow, for during it there is a great scarcity of pollen, and bees slack up brood-rearing wonderfully. Later pollen comes in and they build up well for winter.

Here beekeeping is easier than in any other section. One good apiarist can care for 500 colonies or more without help.

West Florida.—Here beekeeping seems to be narrowed down to the tupelo gum. They have no fall flow, and bees are wonderfully reduced in strength after winter, and work to get ready for the flow which comes and goes almost in the month of May. Some titi in small streams gives them a wonderful start, then, just after its close, a light flow comes on from snow vine. Here beginners do not do much at beekeeping, because conditions are not so favorable for the inexperienced; but here is where our best apiarists keep bees, and they do not reach fame until advanced in years.

Let me say before I quit Florida that I have not mentioned all honey plants here, but only the main ones. Ask the natives about certain plants and in most cases they can point out every variety to you. By all means know them, what you may expect from them and when. Watch the bees.

Bradentown, Fla.

## Garden Flowers That Beautify the Home and Many of which Provide a Wealth of Pollen for the Bees

By W. J. Sheppard, Nelson, B. C.

A GOOD selection of varieties of flowers will keep up a constant succession of bloom in the garden from early spring to late fall. While making this selection the preferences of the bees can at the same time be studied and administered to. What is more delightful than to quietly stroll around to admire a well arranged and well cared for and beautiful garden, filled with choice and fragrant flowers, and to listen to the restful and contented hum of the bees engaged in their daily task of sipping the nectar, or gathering the pollen from the blossoms?

In early spring, crocuses and the blue scillas, or squills, are the first of the garden flowers here to open and attract the bees. A little later on white arabias, yellow alyssum and the lovely azure-blue forget-me-nots make their appearance, all of which are great favorites and assiduously visited. We have tried wallflowers, but have always lost them through the snow breaking them down in winter. Some of the flowering shrubs that begin to open at about this time are a great source of attraction. Many of these make a splendid background for the flower borders. The different varieties of the flowering currants are continually crowded with bees. Then there are the Siberian pea tree, berberis, in variety, white and yellow broom, oleaster, furze, or corse, single lilacs, weigelas in variety, etc.

As a general rule perennials are to be preferred in the flower borders, as when once planted and established they come up year after year and do not require very much attention, except staking and tying up. The perennial larkspurs, or delphiniums, are splendid and make a grand show. The colors—white, pale yellow and various shades of blue—ranging from lovely sky blue to dark indigo and purple shades, are always to be admired. The belladonna, which are of medium height, and the little dwarf butterfly variety remain in bloom nearly all the summer. The bees are constant visitors to these flowers and they are also a great source of attraction to the tiny, glistening humming-birds that come and go all day long, while they remain with us. It is always interesting and often amusing to watch their many little antics. The campanulas are very decorative and there are endless kinds to choose from. The biennial varieties of the cup-and-saucer type are most favored by the bees, as the anthers are simply smothered with pollen. The little catmint makes a nice little plant for the extreme edge of the borders.

Lilies of all kinds are noted for their wealth of pollen and the oriental poppies have also quite a lot. The latter make a gorgeous show, as they are now to be had in colors of all tints, ranging from pure white to all shades of pinks, salmons and the most beautiful reds and crimsons. One can scarcely afford to leave out the iris family, aptly termed the "poor man's orchid," as although not of much, or indeed any, value to the bees, no garden is complete without them. There is a long-continued sequence of most beautiful and quaint flowers if all the various types are grown, viz., the Spanish, English, German, Siberian and Japanese forms. Phloxes are in the same category as the iris family, in not being visited by the bees, but are favorites for the humming-birds, which frequently hover over them. These make such a grand show and flower for so long a period that they are an absolute necessity in every garden, and are sweetly scented. The dwarf Alpine varieties are well adapted for the rockery. The long-spurred columbines, too, must be remembered. These have been greatly improved of recent years. The humming-birds are fond of them, as with their long tongues they have no difficulty in reaching the nectar. Of course no garden would be complete without roses, the queen of flowers. The double kinds are of no service to the bees, but the single-flowered varieties, of which there are so many lovely kinds, and the briers, yield a certain amount of pollen. I almost forget to mention the peonies, that succeed so splendidly here. There is an endless array of beautiful kinds. The single-flowered ones have quantities of pollen. The stately hollyhocks should also be found a place, the single forms of which the bees are very fond of. The bergamot, the horse-mint of Texas (variety Cambridge Scarlet) is very striking and flowers all summer and is a great attraction to the humming-birds.

Of all the annuals that are grown there's nothing the bees are so fond of as mignonette, for which room should always be provided, if only on account of its sweet and constant perfume. The bees simply revel in the blossoms and are to be found there every day when they are able to fly. Phacelia tanacetifolia, belonging to a small genus of Californian annuals, is well worth growing. A place should be set aside for Shirley and other kinds of poppies, as these yield bounteous supplies of pollen and also help to make the garden gay. Nasturtiums of different kinds also deserve to be grown, as the bees repeatedly visit them.

For late summer and early fall there are the perennial asters, or Michaelmas daisies, some of the newer varieties of which are a great advance on older kinds, and are rich in both pollen and nectar. The Japanese anemones, or wind flowers, bloom at this period and are very pretty and graceful.

# Queen Efficiency

By P. C. Chadwick

FOR some time I have given the thought of queen efficiency more than the usual amount of study. The fact that in some parts of California, as well as some of the Southern States, winter breeding is not only frequent but excessive, gave rise to the thought, is excessive winter breeding desirable? From the standpoint of consumption of stores it is reasonable to believe that where winter breeding is in progress to any extent, there is also a flow of nectar that is causing the breeding, which we will assume is sufficient to meet the needs of the colony for that purpose. But the effect on the life and energy of the queen seems of more importance than the mere fact that the colony is breeding during the winter months. There is a period in the life of the queen when she may be said to have reached the "peak" of her energy. The question then arises, how can we secure the best results from her or can we so arrange her career as to secure her services in honey production when she is at the "peak" of her career? In some locations it is doubtful if this can be accomplished, yet it might be.

My observation on the life and energy of queens is that the first season after their mating is the best of their life, or, in other words, they pass the "peak" of their energy at that time, in California. In the east, where the winters cause a long period of rest, as well as being more or less inactive during the autumn, the situation is somewhat different. But even there I have observed that where a long breeding season, say from apple bloom to the close of a long white clover flow comes, the energy of the queen by the next season is waning. In California the breeding under normal conditions in all parts of the State should begin in earnest by mid-February, and if the season is a good one we may expect the breeding to continue almost unabated until well through July, thus giving five months of continual and excessive activity. A queen mated the July previous will have passed her "peak" of usefulness, during the twelve months, under these conditions.

The amount of breeding space given a colony is a factor, for if the queen is confined to an eight-frame hive in the brood-chamber proper, or other small breeding space, she will be efficient much longer than the queen that is given a ten-frame brood-chamber and allowed to lay freely in the extracting-super also, for in the ten-frame hive, with the extracting super, she will have eighteen frames available for brood, while in the eight, her limit would be the eight frames.

If a queen mated in July is placed under conditions that cause her to lay continually through the summer, autumn and winter, it is possible for her to have passed her best before the close of the season the spring following. Hence, it would seem that if breeding could be kept to a minimum during the winter months, the response in the spring would be more rapid and a greater force of young bees could be secured of the

A Wilder apiary in the overflowed region of Florida proper age to gather in the nectar when the season had also reached its "peak" for nectar.

In 1916 every queen in my yard was replaced with a virgin that mated from the full colony. This I consider the most desirable way to requeen. By August of 1917 I had lost more than a dozen colonies from queenlessness, while doubtless many of my 1917 queens had been replaced by supersedure unknown to me. I mention this for the reason that, having requeened under what I consider ideal conditions, I found many of my queens gone by the end of the following season. The ideal time for requeening, in my opinion, would be in September or October, for then, even with much winter laying the greatest energy of the queen would not have been passed. But there are so many years when conditions are such that requeening at that time is almost impossible, owing to a dearth of honey, it is found necessary to requeen when opportunity offers and and not wait for conditions that may not come. Immediately following the main honey flow is preferable, when a dearth of nectar may be expected later.

Redlands, Calif.

## A Talk for Young Folks

By Harry Lathrop

A SHORT time ago there passed away, at Denver, Colo., one who was the full realization of the ideal scout and pioneer—"Buffalo Bill," or speaking more correctly, William F. Cody. "Buffalo Bill," as we love to speak of him, represented a class that will be known no more in our country except in history and romance.

In like manner is passing a class of men who were pioneers in the realm of modern and scientific beekeeping. They were a noble band of men and their names will also live on the pages of history. They will be honored and revered by other enthusiasts who will take up beekeeping for the love of it in the days to come.

What was it that gave the pioneers and plainsmen their power and efficiency? Was it not their ability to read intelligently and unerringly the language of nature and the wilds among which they lived? Like the Indians, they were good sign readers.

What is it that has enabled beekeepers to so control the activities of our interesting little friends, that the result is remarkable in comparison with primitive and uninteligent methods? I think it is the ability to hear the language of the bees and the understanding that bees will uniformly do certain things under certain conditions. Thus the conditions are met and men reap the benefit of the unerring skill of the little workers.

Among all living beings, including plants, there is a strong instinct toward reproduction, or in other words, self-preservation of the race. Notice how many, many seeds are produced by trees and plants. Some trees, like the maple, produce seed pods with wings so they can fly to distant parts. The dandelion uses a balloon or airship to scatter its seeds afar. Among insects, eggs are produced by the millions, and thus some, like the grasshoppers, become a menace to man.

Among higher animals some are not so persistent and in many cases certain families become extinct. The beautiful passenger pigeon, which was plentiful up to about 1882, belonged to this class. The mother bird laid only two eggs at a sitting and the birds refused to breed unless they were in large colonies. History tells about the great pigeon roosts of former years in which there were acres and acres of timber so loaded with nests that some of the branches would break from the trees.

In Florida, some of the apiaries have to be put up on platforms for protection in the lowlands

The roosts were broken up by the ruthless hand of man, great inroads were made in the flocks by the means of shotguns and nets, and the scattered individuals were discouraged and allowed themselves to die without attempting to breed.

In order to illustrate the strong impulse toward self-preservation on the part of bees, I am going to tell you a little story of what I saw in my own bee-yard last summer. About the beginning of the white clover yield I noticed a hive that was strong in bees and brood and in which several queen-cells were already started. I thought it would be a good thing to divide this colony lest the bees should swarm when I was not looking. The colony had two eight-frame bodies for a brood-chamber, and one super of store combs over an excluder. I procured another hive and placed it on another stand about ten feet distant. Then I proposed to take all of the brood and some of the bees out of the parent hive and place them over in the other hive, leaving the queen in the parent hive, which I would fill with clean brood-combs. I was sure the bees would go to work in each hive, and give me a good crop of honey at the close of the season.

The division was made, and as I took out the combs of brood and placed them over in the new hive I kept a sharp lookout for the queen. I failed to see her and simply took it for granted that she was left in the broodless hive. The bees knew better and they soon told me so in language which the bee-master knows very well. You see it is this power to understand the language of bees that makes a beekeeper. I had evidently taken the queen with the brood, and the bees, in the now queenless and broodless hive, manifested the most unmistakable signs of distress. Such distress on the part of humans would be heartrending.

I had taken away their last hope of perpetuating the colony. Now bees don't care so much for an individual, it is the good of the colony (community) they are looking after. They are great socialists, indeed. But to return to the hives; what should I do to make matters right so that the discontented colony would go to work, clean house and begin storing operations? I will tell you what I did. Without taking the time to look up the queen, I just lifted out one comb having brood and a few queen-cells, from the new colony, and placed it in the parent hive. Almost instantly the bees quieted down and gave out that contented, musical hum that the beekeeper so loves to hear.

What I did gave them the means whereby they could rear another queen, or mother bee, and thus go on as a living family and not miserably die out as they would have done.

What of the results? I do not have much time to give to my bee-yard on account of other duties, so these hives were not looked at again till it came time to extract the crop. The first one gave 150 pounds of nice, white clover honey. I really expected the other would be weak, but it gave the same amount, so the colony that was divided really paid me $30 for the season. Not so bad, considering the little time I gave them.

From what we have learned from the bees and in other ways, I am sure it is proper to say that the most important requirement is to guard carefully those things that have to do with our lives and our home. The bees would not allow their home to be broken up contrary to the laws of their being. So should we guard with the greatest care the things that are most important. It is fine that we can learn to understand bee language; they can teach many lessons and give us interest in good things and fellowship with good men and women. We can follow in the path marked out by the pioneers and it is an honor to do so.

Bridgeport, Wis.

# Foods We Need, and the Foods to Use

By Mary G. Phillips.

IT is a regrettable fact that although most of us women are willing to let our families go undarned and buttonless, while we sew on Red Cross bed shirts, and are willing to sit up until midnight finishing a Red Cross sweater, we are not so willing to make the real personal sacrifice which following the letter of the Food Administration law entails. It is neither pleasant nor easy to omit eating between meals at afternoon gatherings, it is hard to give up the favorite dish of toast for breakfast, and hardest of all comes the knowledge that the strain upon one's already overburdened pocketbook is increased somewhat by keeping the food pledge. There are entirely too many families where the food pledge, although signed, is not strictly kept, although here and there in every community will be found a family, and perhaps it will be the one least suspected of being capable of real sacrifice, which is bending its whole daily energy to winning the war. That is the family which realizes that until every man, woman and child in the country accepts a personal responsibility in following the directions of the government, the war will go on. Here is where we women have a special opportunity for service—in controlling the kitchen, thus deciding what and how much the family shall eat, we are directly responsible for the keeping of the food pledge. More than that, have you ever noticed that it is the mother who sets the tone of the household? By setting an example in sacrifice, as well as by making the children understand the necessity for eating cheerfully, not what we like, but what the soldiers do not need, it is generally the mother who sets the standard of conduct.

We must not forget, however, that the Government is not asking us to give up one article of our diet which we actually need to keep the body in good health. We are not so much to "do without," as we are to "substitute," but to do that intelligently we must know a little about the various foods and what they do for us. Most housewives are frightened by the use of such terms as "protein," "calories," "carbohydrates, etc., when, after all, the fingers of one hand are enough to tabulate all the terms we need to know. The foods required to keep the body in proper condition may be grouped under five heads:

Group I.—Meats and other protein-rich foods.

Group II.—Cereals and other starchy foods.

Group III.—Sweets.

Group IV.—Fats.

Group V.—Body- regulators, fruits and vegetables.

We need foods from all five of these groups every day, and if we can once get them fixed firmly in mind, it almost becomes second nature in planning meals to choose something from each group.

In some localities the dearth of pollen in spring holds back brood-rearing. Above are two buckets partly filled with corn chop, with bees working on it

The foods in Group I are chiefly for the building of new tissue, and naturally people who live an active life, which breaks down and uses up tissues rapidly, need more protein than sedentary folks. That is why our soldiers consume such great quantities of pork and beef, they are leading far more strenuous lives than they did as civilians. Actively growing children must have considerable protein food, but fortunately, the form best adapted to their needs is whole milk. With regard to this kind of food, the Government asks us in the new home card, not to eat any meat on Tuesdays, to omit all pork (which includes lard) on Tuesdays and Saturdays, and to have one meatless meal each day. This does not mean that our families should go without the proper amount of protein each day, but it does mean that we must substitute for bacon, beef, mutton and pork, the following protein-rich foods: milk, poultry, eggs, cottage cheese, fish, nuts, peas and beans.

Group II, containing the foods rich in starch, is most important, as it contains that vital factor in the war—wheat. Whole cereals come near to being complete foods, since they contain protein and other needed elements as well as starch, and in most countries they supply more of the nourishment than any other kind of food. Wheat, rye and barley are the three cereals which can be used in making bread as we know it, and the progress in luxury and prosperity of a country can be gauged by which of these cereals is used. Uncivilized peoples, begin with barley, but as the race becomes more prosperous it discards barley for rye, then later, rye is discarded for wheat, which makes a bread that is whiter, lighter and finer in texture. The nutritive value, however, of these three grains is practically the same. The French are the greatest eaters of white bread in the world, for 52 per cent of their total food is wheat bread. They do not eat rice, oats, corn, barley nor rye, and it would mean an entire change of diet for them to adopt these cereals. Shall we ask the women of France to use these almost unknown foods, when they are already so overburdened and harrassed or shall we, who know and like these substitutes, use them and give to the French their much needed wheat? The noble, uncomplaining French women are not only managing their different homes, sending packages of food to their soldier prisoners in Germany, caring for the tubercular and infirm at home, but they are likewise doing all the agricultural work of the country, some of them being even harnessed to the plow!

Every time we use some cereal other than white flour we are helping these magnificent women abroad. Here are the starch-giving foods from which we may choose: Cornmeal, rice, barley, potatoes (sweet and white), rye, tapioca.

Group III consists of foods containing sugar, the fuel which, together with fats, supplies the energy of the body. Here beekeepers' wives have an unusual opportunity to help supply the needed sugar for the allies. For we are familiar with honey and know how to use it in cooking, therefore let us use honey entirely for sweetening, if we have any of the crop left. Of course this does not excuse us from being as sparing as possible in our use of sweets of any kind, and for the sake of variety as well as to supply the needed sugar without encroaching upon that which may be shipped, it is wise to substitute dates, raisins, figs and prunes, all of which are rich in sugar.

Group IV consists of fats, "the most precious thing in this war," for not only do fats supply energy for the body, but they are needed in the making of explosives. We are not asked to do without fat—part of our duty is to keep the people at home in prime condition—but we are asked not to waste a single ounce and not to use any more than we need. We certainly do not need pie every day, nor fried foods, and we can substitute vegetable oils largely for the animal fats we have always used. There is one precaution to be observed, however, in using oleomargarine or other butter substitutes. None of the fats which take the place of butter contain certain chemical substances (which have not yet been named) which seem to be necessary for the growth of children, and which are found in butter. You will notice in all the government bulletins that we are warned not to cut down the children's butter ration, so even though you may pay the price for butter with a groan, it is better than paying a doctor to tell you that your child is suffering from malnutrition.

A House Apiary in Sweden. We little realize what it is to be crowded for bee locations

Group V, the body regulators, form an important part of our meals which is too often neglected. It is to be hoped that we come out of this war a nation which eats more fruit and vegetables, instead of the excessive meat eaters we have been. It is from fruits and vegetables that we get mineral salts, certain acids and bulk, or "roughage," all of which help to keep the body in good health. As most of these foods are perishable, we are not asked to restrict ourselves in their use, and I think that we will find our families all the better for a larger supply of them in our meals.

It seems as if it should be an easy matter to plan meals with all these foods to choose from, and if we put our whole energy into the task, it is not especially difficult. The woman is fortunate who has her cellar stocked with home products and who has her poultry and eggs in the back yard. Those of us who are city dwellers and who find that the grocer is just out of the very things we planned to eat on a certain day, may have to make the meals a little one-sided that day; but one can readily shift the balance in the other direction the next day. And the best part of putting one's whole heart into the task of providing a balanced ration, is the sure reward of bright eyes and rosy cheeks in the family.

Washington, D. C.

## A House Apiary

By Frank M. Pillsbury

The cut shows a house apiary belonging to Mr. H. Jonsson, in Sweden. He has only black bees and does not favor the Italians, having tried them and discarded them in favor of the blacks. He has handled these without veil or gloves for years. The house contains forty-eight colonies, as can be seen, with twelve colonies in each ell. Entrances are painted different colors. Formerly skeps were used, but the change to hives has been very satisfactory, since it is no longer necessary to sulphur the bees.

Rochester, N. Y.

## Apiary Buildings and Their Equipment

By Morley Pettit.

A BEEKEEPER'S buildings and equipment will depend on his general system of management. If he moves his extracting machinery from apiary to apiary he can use vacant houses or temporary structures which can be made fairly bee-proof at moderate cost. A complete extracting outfit at each yard will involve more expense for equipment; and if he brings all supers home to extract, a good central plant will practically replace all outapiary buildings.

All three systems have their advantages and disadvantages, and each beekeeper must choose the one which in his case has the most of the former and the fewest of the latter.

Before the days of power machinery and motor transportation, one of the outyard arrangements seemed the best. The hand extractor was easily moved and set up, or a complete set of extractors was not expensive. The smaller output with hand machinery simplified the handling of the honey and getting it all home each night. On the other hand, teaming supers home and back again was slow, costly and dangerous.

In one way the introduction of the automobile made this arrangement more desirable by shortening the time on the road and leaving more time for work or recreation each day. But outapiaries have to be moved sometimes; temporary arrangements are little more than a makeshift, and one tires of always working under these conditions.

Then came the more general use of power extractors with increased capacity which complicated the matter of moving and setting up machinery and increased the difficulty of clarifying, filling and taking home all honey at the end of each day's work. Some advanced beekeepers immediately bought motor trucks, as the lighter ones were then coming on the market, and started taking all supers home to extract. The high cost of trucking at that time deterred most of us from following their example; but I have not heard of anyone going back on that system after once testing it thoroughly. The present facilities for converting light cars into trucks at low expense are increasing the number of satisfied users of the central extracting plant.

I do not believe the advertising manager of the American Bee Journal will object to the following expression of an idea prevalent among advanced beekeepers, that Henry Ford has made commercial beekeeping in its present advanced state possible. Without perpetrating a new Fliver joke, I wish to express a desire that his name be placed beside those of the inventors of the movable frame hive, the extractor and comb foundation, and that he be made an honorary member of the National Beekeepers' Association.

**Advantages of Central Plant**

When apiaries are all managed

from one central plant the advantages may be listed as follows:

1. A thoroughly suitable building may be erected on the beekeeper's own property where machinery can be permanently installed. A systematic person will then gather around him all sorts of labor-saving devices and conveniences which take time to accumulate and which frequent moving to outapiaries completely disorganize. I am referring especially to the tools one uses only occasionally which must have regular places and be kept in them or they can never be found when wanted.

2. There is less expense for equipment than where each apiary is equipped, and less wear on machinery than where one outfit is torn up, moved, fastened down and torn up again from time to time.

3. Larger and better machinery will be used, and it will be installed in a much more substantial manner when it is going in to stay

4. More pounds per day will be extracted because of the improved machinery.

5. The work of extracting and caring for honey and cappings is done at home, where meals and hours can be regular, and if the beekeeper wishes to fit machinery or do other chores before and after hours he is there to do it, instead of traveling on the road. This matter of regular hours is very important in keeping help.

6. Honey can be left in storetanks for a few days to clarify, free itself of air bubbles from the extractor, and blend before filling into selling packages.

Rear view of Pettit Apiary Building

7. The work of extracting, once started, can be carried through more systematically.

8. At the end of the season all supers are at home for the overhauling or painting many of them will need.

No doubt the advocates of this system will know other advantages I have missed.

The disadvantages of bringing supers home to extract are:

1. The expense of hauling full supers home and empty ones out, including some risk of breaking combs. This includes first cost, upkeep and depreciation of truck; also the time of driver. Against this must be balanced the fact that a light truck is practically indispensable anyway; almost as many trips to the outapiaries would be needed to go to work as to bring supers home, especially as the honey and wax have to come home in any case, and the moving and setting up of machinery take considerable time.

2. The trouble with robbers when wet combs are taken to a yard in the absence of a flow. This is serious, but could be overcome by going with them at night, as a last resort.

3. A more serious objection is the danger of spreading disease, and I would advise going slowly until it is pretty well eradicated from all apiaries concerned. The danger can be overcome by extreme care to prevent robbing at every step. The home garage should be in the same building as the extracting room and equally bee-tight, so that each load of supers is under cover all the time at home except when actually moving in or out. Also all supers from each apiary should be kept by themselves, with no mixing. Extreme care with reference to infection all along the line will not only prevent spread from one apiary to another, but should eradicate American foulbrood entirely.

**The Pettit Apiary Building**

After several years of moving machinery, first the hand extractor and capping can in a one-horse wagon; then the power extractor, engine and capping melter with a team, and later in a motor truck, I have become a convert to the central apiary building idea. I have built one and have, or will incorporate in it some ideas based on modern principles of factory equipment. The building is 24x40 ft., with walls 16 ft. to the plate, and a gable roof. It is built on a concrete foundation and is two stories high, with a 4-in. cement floor down stairs and a pine floor on 10-in. joist overhead. The joist are 12 ft. long and meet on a middle partition, making a floor strong enough to carry almost any weight that is likely to be put on it.

The ground floor is divided by the middle partition, which stops 11 ft. from one end for a garage, running across the building and extending 6 ft. in front. This garage, being about 11x30 ft., has room for a truck and an automobile, or two light trucks, as required. The other two rooms, each 12x29 ft., are the extracting room and honey room, respectively. It is 10 feet from the lower to the upper floor, giving a ceiling 9 feet in the clear. The cement foundation on all walls rises four inches above the cement floor, which slopes toward the middle of each room, where a bell-trap connects with the sewer. This makes washing down the floor with hose and brush after each day's extracting, or other mussy work, a pleasure to anticipate. The extracting room also has a washing sink with draining table against the middle partition near the door of the honey room. Running water, hot and cold, and steam will be on tap at the sink.

The upstairs will contain the office of the business, a lavatory with closet and a shower for the men, the carpenter shop, paint shop, foundation room, storeroom, etc. As far as possible, I aim to have a room devoted to each line of work, and use it for nothing else. Then machinery and appliances once installed need not be moved, but can be left all ready for use at a moment's notice. It will be a lot of space, but that is cheaper than man-time, which is about the most expensive commodity there is in production today.

The stairs go up beside the middle partition and open from the garage. They are of easy grade for climbing, but no wider than is necessary for one person to go up or down. They are not intended for carrying things up, as all material goes through a trap door in the ceiling over the garage. This is 6x4 ft. and may be fitted with a simple hoist, although it is easy to hand light things up or down from the back of a truck standing on the garage floor beneath. This is particularly convenient when loads come in or go out; all material being handled in the garage under

Apiary side of central apiary building at the Pettit Apiaries at Georgetown, Ontario. Garage door on this side allows truck to be backed out between rows of hives for bringing in supers. Extracting room downstairs; office and carpenter shop upstairs cover. At present heavy boxes are taken up with block and tackle.

It will be seen by the illustration that a large percentage of the outside wall space is glass. This abundance of light relieves the depressing effect which indoor work so often has. It also allows machinery to be placed or supers to be piled wherever convenient, regardless of the location of windows. The ceiling downstairs is 9 feet in the clear and all windows will be screened, giving plenty of air.

(To be concluded).

## The Nutrition of the Honeybee

By R. Adams Dutcher.

Division of Agricultural Biochemistry, University of Minnesota.

(Continued from March number).

HONEYDEW, the other material from which honey is made, is found on leaves of trees and shrubs and is supposed to be excreted or rejected by plant lice which feed upon a portion of the leaf sap. Honeys made from this material are generally considered inferior to those made from floral nectar. Table VII shows an analysis of honeydew from the pine tree.

**Table VII**

| | |
|---|---|
| Water | 54.41 |
| Cane Sugar | 8.16 |
| Invert Sugar | 17.44 |
| Gums | 19.19 |

Comparison of nectar and honeydew analyses shows the honeydew to be high in gummy materials which are known to be digested with difficulty by the bee.

Honey, which makes up a very large part of the bee dietary, has the following composition:

**Table VIII.**—The Composition of Honey

| | Per cent. |
|---|---|
| Water | 17.00 |
| Invert Sugar | 75.00 |
| Cane Sugar | 1.90 |
| Dextrin (a gum) | 1.80 |
| Protein | .30 |
| Ash | .18 |
| Undetermined (pollen, dirt, hair, etc.) | 3.68 |

It is readily seen by examining Table VIII that honey is a carbohydrate food composed almost entirely of invert sugar and can furnish little or no nitrogen for the building of tissue.

Another very important food for the bee is pollen obtained during the flowering season and deposited in the comb as beebread. This beebread is a storage material and is drawn upon as needed for the feeding of the queen and larva. It should be noted that the worker bee eats comparatively no pollen, but confines herself to an almost protein-free diet of honey. There is little wonder that she lives but a few weeks or months. The queen bee, whose diet is very well balanced in every way, lives for several years. Table IX shows the protein content of some Canadian pollens:

**Table IX.**—Result of the Analysis of Samples of Pollen

| Pollen from— | Moisture | Nitrogen in water free substance | Equivalent to Protein |
|---|---|---|---|
| | Pct. | Pct. | Pct. |
| Yellow box and messmate | 23.50 | 3.56 | 22.25 |
| Blue stringy bark | 25.15 | 4.39 | 27.43 |
| Messmate | 20.80 | 4.29 | 26.81 |
| Black wattle, etc. | 24.25 | 3.87 | 24.18 |
| Cucumber | 20.17 | 3.66 | 22.87 |
| Flat weed | 22.80 | 2.77 | 17.31 |

(Analyses of corn pollen made at this laboratory show a protein content of 24.20 per cent.)

### The Use of Food by the Honeybee

From what has preceded we are forced to conclude that food is used by the bee for two purposes: (1) to build protein tissues, and (2) to furnish heat and energy. This explains why the larvæ receive such large quantities of pollen, for in the brief space of 21 days all of the protein tissue of the bee's body is manufactured. The larvæ are fairly "stuffed" with nitrogenous food. The same is true of the queen; not only is she required to repair old tissue, but she is required to manufacture thousands of eggs, and yet she lives for several years. Her diet is highly nitrogenous. Table X shows the composition of larval foods:

**Table X.**—Composition of Larval Foods

| | | Drones. | | Workers. | |
|---|---|---|---|---|---|
| | Queen | Under 4 Days | Over 4 Days | Under 4 Days | Over 4 Days |
| Protein | 45.15 | 55.91 | 31.67 | 53.38 | 27.87 |
| Fat | 13.55 | 11.90 | 4.74 | 8.38 | 3.69 |
| Sugar | 20.39 | 9.57 | 38.49 | 18.09 | 44.93 |

(These results were obtained a great many years ago and may not be correct. However, they are comparable.)

With these facts in mind certain questions immediately present themselves. Can we lengthen the life of the worker bee by insuring high protein larval food of the right type when pollen supplies are low? Is there any relationship between the composition of the larval food and the strength of the colony? Would it be possible to feed the worker bee a small quantity of easily digestible protein material (in the honey or syrup) which will not cause a large accumulation of feces during the winter months? Table IX shows that pollens from different sources vary in protein content and the question might be raised, are all pollens equally valuable for larval foods? Can we find a cheap substitute for pollen and bring on brood rearing earlier, in order that we may have a larger colony for work by the time flowering season comes on?

These and many other questions are being considered by the Divisions of Bee Culture and Agricultural Biochemistry at the University of Minnesota, and preliminary experiments are now being carried out along these lines. From a practical standpoint, it would be worth thousands of dollars to the honey industry to be able to put more bees and stronger colonies into the field during the honey season.

At present honey and cane sugar are the winter stores used for wintering bees, and it is known that colonies often come out very weak in the spring on such diets, especially if the colony was composed largely of old bees when going into winter quarters.

Analysis of the bee's body reveals appreciable quantities of mineral elements, such as calcium, sulphur, phosphorus, chlorine and other elements. Do these play an important role? This question will be studied also.

We have one experimental colony in a greenhouse which contains no vegetation. These bees are being fed honey and corn pollen. Analysis of the pollen, beebread and larval food should shed some light as to the changes through which these important substances pass.

Various substances for pollen have been used with varying success. No suggestions can be made at present in this regard, but we have one colony raising brood in the cellar at this time (Dec 5) on a cane sugar diet containing powdered casein, a milk protein. Whether this is due to the casein or reserve of pollen stores remains to be seen. The matter of protein food for the honeybee is of real practical importance, for honey is an important article of food in times of peace, and now that sugar is not plentiful, the allies are shipping loads of honey from this and other countries to use as a sugar substitute. One consignment alone amounted to 2,000 tons. If we can increase this amount ever so little, we will have accomplished something not only for the nation, but for the honey industry.

## The Flowers of California

By W. A. Ryal.

I HOPE I may be excused for appearing a bit egotistical when I refer to my past writings on the honey-secreting flowers of California. Having been brought up among trees and plants (my father having been one of the pioneer nurserymen and fruit growers of this state), I naturally grew up among garden surroundings. And having been on the place since the days of 1865, I, too, learned about these insects when I was a little fellow. And at an early date I learned to investigate the source of the nectar they brought to the hives. This I was prompted to do more especially as I had noticed that some honey was much lighter and finer flavored than other grades. Then, after some years, I began to read the periodical bee literature of America and, I think, it was in 1876 or '77 that I began to write for the press.

Some time in 1877, when a student of the University of California, I received a clipping from a Los Angeles paper asserting that the flowers of a certain variety of Eucalyptus in or near that city were so poisonous to bees that thousands of them were found dead beneath the branches of the tree. The said clipping was referred to me by Mr. E. J. Wickson, the editor of the Pacific Rural Press, a gentleman who shortly afterward became one of the professors of the University of California, and who is, I believe, still connected with the Agricultural Department of the University. I was asked to write what I knew upon the matter. My reply was that I had never known bees being injured by quaffing the nectar of any variety of the tree in question; that I never saw any bees that were destroyed by gathering nectar or pollen from any tree or plant whatever.

The Los Angeles paper, through its correspondent, N. Levering, still persisted that bees were killed by such nectar, at least, by this particular tree. However, some forty years have since passed and the Eucalypti "tribe" are considered the most valuable honey-secreting trees introduced into California; they still fill a void that would otherwise be largely nectarless, thus keeping many a colony from starving during November and the winter months.

### The Yucca

Upon the mountains and in some of the desert places through the lower or southern counties of California, one meets the Yucca *(Hesperoyucca whipplei)* and at times specimens thereof are pretty and interesting, especially when they are in bloom, usually during June and July. Besides its native haunts, it may be occasionally seen in public parks and gardens in various portions of the State. The nectar is attractive to bees and, where it grows numerously, a good grade of light honey is secured from it. Something over a quarter of a century ago, the late W. W. Bliss, of Durate, Los Angeles County, made a bee-brush from the leaf of this plant by securing a quantity of the fiber attached to the trunk. It made a soft fan-shaped brush that had some sale for a few years.

To call a plant out of its established botanical name, even if such name is a long one and hard to remember, is to give it a vulgar name, and the Yucca has many. It might appear to the casual reader irreverent to say "Our Lord's Candle," "Roman Candle," or "Mountain Queen" are "vulgar," but to these can be added "Spanish Bayonet" and "Spanish Dagger," which rather strongly contrast with the former. There are about a dozen species growing in the southwestern portion of the United States, and in adjacent Mexico.

Very recently it has been reported that this plant is now used to make brooms. Another species is being manufactured into surgical splints. And also it is being experimented with in the making of artificial limbs.

The clump of Yuccas here illustrated I photographed one excessively hot day in July, 1915, when with my wife I was motoring toward Los Angeles. It is a true yucca *(Y. arborescens)* and is commonly called Tree Yucca and Palm Yucca. We had left the mountainous ranges where the first-mentioned genus abounds, and after passing a small place called Fairmont, a sort of oasis on the edge of the Mojave desert, we traveled for some distance along a stretch of dry, sandy soil on which grew little other than scrubby brush, cactus and Yuccas.

Oakland, Calif.

Yucca Trees in California

## Beedom Boiled Down

### A Pound of Bees Not Enough

I differ with Dr. Miller on the fourth question asked by Washington, in January number. A pound of bees supposed to contain 5,000 bees, say one-fourth remain in the hive as nurse bees, that would allow a good queen to do only one-fourth of her duty. A queen worth keeping will fill a comb with eggs in a day. It will be 21 days before more nurses can emerge, and as some bees are lost every day, less than two pounds, or, better, three pounds, is sufficient to build up a colony readily in the cool weather of spring.

M. F. PERRY,
Bradentown, Fla.

### Memory Joggers

A record book with notes giving a brief record of each colony is almost a necessity. As an aid to getting odd jobs about the apiary done, I find the memory joggers just the thing.

At your printing office get some bright colored cardboard and have it cut into squares two and a half inches each way. Punch a small hole in the corner of each card. With a piece of string tie each card to a two-inch harness ring. Carry a few of these in the tool basket and when a colony needs attention make a note on one of the red flags with date when colony will need attention. Thus: 5-7, examine brood; 6-11, swarm due, etc. Slip the ring under hive cover, letting the red flag dangle at front of hive. They are conspicuous, convenient and facilitate prompt work.

### Wrapping Hives for Outside Wintering

When it is desired to wrap hives for outside wintering it is unnecessary to use building, roofing or other expensive paper. Use newspapers for all except the outside layer, which should be a fair quality of wrapping paper, such as the merchants buy in rolls for wrapping goods. This can be bought in almost any desired width. After all is in place tie down firmly and with a paint brush give a coat of the following mixture: kerosene oil, two parts, and raw linseed oil, one part. This will waterproof the paper so thoroughly that it will stand exposure to rain and sun for a year or two.

L. A. GREELEY,
Morenci, Mich.

### Uniting Weak Colonies

For uniting weak colonies I make a division board of strips that fit tightly to the bottom board as well as the ends, and even with top of hive. Both sides of the skeleton frame are covered with wire cloth

to prevent the bees from fighting through it. I move three or four frames with the bees to one side and put in the division board. The entrance is closed at night and an oilcloth cover placed over the frames. The colony is then moved to the stand of the one with which it is to be united. The frames from the entrance to that side is left open, since it is on the stand of that colony. After three or four days the division board is removed and all the bees released, when they unite without trouble. FRANK HAACK,
Marion, Ore.

### A Sure Way to Find a Queen

I fasten a perforated metal cage over the entrance so that the bees canot shift it. The frames are then removed one by one and the bees brushed off in front of hive. Replace the frames as shaken. The queen will readily be found trying to get through the entrance. When brood-rearing is about over in the fall one is almost sure to find the queen by taking out the three frames from the middle of the hive and shaking them in this way.

J. H. SEIFFERT,
North Bruce, Ontario.

Cumdurgi Apiary:

The South Wales Apiary of W. Thomas

### From South Wales

"Our average is from 50 to 60 lbs. in this part of the country, but our honey is fine. It doesn't need blending All our bees are the German brown race. W. THOMAS,
Swindburg, Mydrim, S. Wales.

## BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Honey-Sweetened Whipped Cream

When whipping cream try adding a teaspoonful of strained honey instead of sugar. It not only gives the cream a delightful flavor, but causes it to stay whipped and firm all day.

### How to Make Honey Candy From Candied Extracted Honey or From Candied Comb Honey

By Mrs. C. W. Aeppler.

In making honey candy, either from candied extracted honey or from candied comb honey, the obstacle to overcome is the semi-liquefaction of the chocolate that is used after the candy has been made and allowed to stand in a warm room.

This matter was for a long time quite a problem, but after some experimentation the following method was adopted, which, if followed, will give excellent results:

If candied extracted honey is used, the honey should be entirely candied and not be in a semi-candied condition. The candied extracted or comb honey should be cut into suitable pieces, half an inch each way is a good size. To do this, use number 30 wire, such is is used in wiring brood frames. The wire is fastened to pieces of wood and by means of a sawing motion the candy can be easily cut into perfect cubes or other desired shapes. The friction will heat the wire so that the candied honey can be cut rapidly.

If ordinary chocolate is used to cover the cubes of honey, the chocolate will assume a semi-liquid condition on standing for a time. To overcome this something must be added to the chocolate to give the required texture. The method of procedure is as follows. Liquefy the chocolate in the usual way and to the liquid add about 5 per cent of its volume of beeswax. A little experimentation will enable one to determine the amount needed for best results. If too much wax is used the beeswax can be tasted, but if just the proper amount is used it cannot be detected in any way. The mixture should be stirred carefully so that the beeswax will be evenly incorporated with the chocolate.

The mixture must not be allowed to cool while dipping the candied honey. If allowed to cool, the beeswax will separate. To prevent this set the containing vessel in hot water while dipping in the candied honey. The candied honey is dipped into the mixture by means of a piece of wire or long pin. The pin is inserted into the cube of honey and dipped into the mixture. If the temperature of the mixture is quite high it may not cover the candied honey as thickly as is desired, and in that case the cubes must be dipped more than once.

Nuts can be used in connection with this method to advantage. The pieces of nut (walnuts, pecans, etc.,) can be pressed into the cubes before dipping, or pressed into chocolate on the cubes prior to cooling. However, as the chocolate cools very quickly, considerable practice must be indulged in before the latter method becomes a success.

The slight taste of beeswax imparted is pleasing rather than displeasing. Another addition to the long list of its uses helps our industry, since beekeepers could advertise the use of beeswax in this connection when making honey sales.

Apiary of J. H. Seiffert, or North Bruce, Ont.

This candy is strictly honey candy, and contains nothing but the products of the hive, with the addition of the chocolate. It has many advantages over candies made from cane sugar. In fact, there is real food value in honey candy. It can be eaten by children and no harm result, such as might result on eating large quantities of candy made from sucrose.

In short, candy made in this way is perfectly delicious. But it must be remembered that the secret lies in the addition of the 5 per cent of beeswax.

# LEGAL SERVICE DEPARTMENT

## Leasing Apiary Sites

I am starting a new apiary on leased ground and have made arrangements with the owner of the land as follows: The lease is to run for a period of twenty years at a yearly rental of $15, with an additional rental of 50 pounds of honey annually, providing the crop amounts to 1,000 pounds or more. He is to give access to the land by means of an already established road. I am to fence the apiary site against stock. Such buildings as I construct are to remain my property, to be removed if desired at the termination of the lease. Can you give a legal form of lease to cover the above agreement?

Answer—In the following form the land owner is the party of the first part and the renter the second party. It is not necessary that any special form of wording be followed to make a contract binding, provided that the terms of the agreement are clearly set forth. The usual form is something similar to the following:

This article of agreement made and entered into on the 8th day of December, 1917, by and between John Jones, party of the first part, and Frank Smith, party of the second part, witnesseth:

That in consideration of the sum of one dollar in hand paid by the said second party and the stipulations and agreements hereinafter mentioned, the said first party hereby agrees to lease to the said second party the following lands, to-wit: One acre in the northwest corner of his farm in section 34, township 35, range 8. Dent County, Missouri, known as the Simmons place, for a term of twenty years.

It is hereby mutually agreed that the said land shall be used as an apiary site and for no other purpose, except as may be necessary in the care of the bees and the production and marketing of honey and wax

The second party hereby agrees to pay to the first party the sum of fifteen dollars annually on or before the first day of July, as rental for said premises, with an additional rental of fifty pounds of honey each season that the total production of surplus honey from said apiary shall amount to one thousand pounds or more.

Said second party hereby agrees to build a suitable fence to protect said apiary from live stock at his own expense and to keep same in repair during the life of his agreement..

It is further agreed that said second party shall have access to said premises by way of an already established road; that he shall have the privilege of erecting buildings thereon for his own use in connection with the said apiary and that such buildings shall remain the property of the said second party and he shall retain the right to remove them at any time that he shall have occasion to do so.

Signed in duplicate this .......... day of .......... 1917.

JOHN JONES
FRANK SMITH.

# MISCELLANEOUS NEWS ITEMS

**New England Pioneer Dead.**—Old subscribers of the American Bee Journal who were with us in 1916 will recall our April number, which was devoted almost exclusively to New England.

In it was given a description of New England's oldest beekeeper, Mr. Joseph H. Chase, who has just died, in his 91st year.

Not only was Mr. Chase a pioneer beekeeper, but he was noted as a horticulturist, having taken prizes for many years at the annual horticultural show of his State. His specialty was grapes, as well as bees, and he was also noted for his varieties of peonies.

---

**Conditions Abroad.**—In the November and December, 1917, also January numbers of the "Schweizerische Bienen-Zeitung" (Swiss Bee Journal), I find the following of interest:

Beeswax is now bringing 59c per pound in Switzerland. The foundation manufacturers are troubled no little in getting raw material.

In the January number of the American Bee Journal I reported the average production of honey per colony to be 5 Kg. This should now be modified, as the latest report of the Swiss Beekeepers' Association shows an average production of 8.0 Kg. (17.6 pounds) for 1917. In 1916 the average production was 5.2 Kg., in 1915 9.9 Kg., and in 1914 4.1 Kg. The total value of the honey crop in 1917 is given as $1,397,500. However, on account of the increased prices of supplies and sugar, no profit has been left the average beekeeper for his season's work. The Swiss do not enjoy the large production per colony as we do here in the United States.

The war department has allowed a maximum of 4 Kg. (8.8 pounds) per colony for spring feeding. Even though the importations of sugar have become more and more restricted, the bees are well provided for. The entire success of the latter enterprise is due to the efforts of the Central Beekeepers' Association. If it were not for this powerful organization, Swiss beekeeping would no doubt have perished ere this under the heel of war's ruination. The wholesale price of sugar in January, 1918, was 11.2c per pound, which is, of course much higher than we are forced to pay.

C. W. AEPPLER.

---

**Illinois River Valley Beekeepers.**—At a meeting held at Pekin, Ill., called by W. H. Williams, of Pekin, more than 50 beekeepers were present. Dr. A. C. Baxter, President of the State Society, gave an address, as did C. P. Dadant. A local organization was formed under the name of Illinois River Valley Beekeepers' Association, with the following officers: President, W. H. Williams, Pekin; Secretary, F. R. Irenberg, Pekin; Vice President, O. S. Biggs, San Jose, Ill. The large attendance at this meeting shows what good advertising will do.

---

**Correspondence Course in Beekeeping at Iowa State College.**—The Iowa State College is making special efforts to induce Iowa beekeepers to produce a maximum crop of honey this year. In order that a large number of beekeepers may be aided, a correspondence course in practical beekeeping has been prepared. The course includes ten lesson outlines, which will be sent out throughout the season as needed. Two reference books on beekeeping will be included with the lesson outlines.

A fee of three dollars will be charged, to cover the cost of the books, and will be the only charge to the beekeepers taking this course.

Any beekeeper with one or more colonies will find it profitable to enroll for this course, and younger members of the family are urged to undertake the care of the apiary for the coming season, where the usual attendant is too busy.

The world has realized, as never before, that the final success of a nation depends upon its food supply. To increase the supply of most foods, extra labor, machinery, ground and seed are required. With honey, however, a much greater crop can be secured by means of preparedness and a little attention to the bees at the right time. Give the bees a chance to do their bit. Nature provides the nectar, your country needs it. Join the correspondence course and harvest it. Following is a list of lecture topics, with dates of mailing.

March 1—I. General outline of course, suggestions for reading and preparation for crop, and definitions of bee terms.

April 1—II. Spring management of bees.

April 15—III. Diseases of bees and treatment.

May 1—IV. Transferring bees.

May 15—V. Swarming, control and methods of increase.

June 1—VI. Comb-honey production.
June 15—VII. Extracted honey production.
July 1—VIII. Preparation and marketing of honey.
August 1—IX. Fall management of bees.
September 1—X. Wintering of bees.

F. ERIC MILLEN,
Ames, Iowa.

**Nebraska Meetings.**—At the January meeting, held at the University State Farm in conjunction with the Organized Agriculture meetings, the following officers were elected: President, F. J. Harris, of Lincoln; Vice President, Geo. O. Olson, of Wahoo, Secretary and Treasurer, O. E. Timm, of Bennington. Also a committee of four was elected for the purpose of getting new members and stirring up a greater interest in the association.

It was decided to hold a meeting on Thursday, at 9 a. m. during the State Fair. At this meeting will be given several instructive talks on the needs of co-operation in beekeeping, etc. Also it is expected to hear a report of the committee on their work done.

On February 2 the officers held their meeting at Omaha and certain changes concerning the State Fair exhibit were recommended before the Board of Agriculture.

Also it was decided by the Association that they will care for all exhibits sent in to the State Fair by members who cannot personally be there to care for their exhibit. This was made especially for beginner exhibitors who can have only a few entries.

Any exhibitor who wants to take advantage of this offer must write the Secretary at least six weeks before the Fair.

O. E. TIMM, Sec'y.

**The National Meeting at Burlington.**—The meeting of 1918 was one of the smallest in attendance and one of the most harmonious and interesting in discussions that the National ever had. The small attendance was due to lack of early information as to the date of meeting and program, some members stating that they had received a copy of the program only a day ahead of the date of the meeting.

President Jager was present only on the first day, being called back to St. Paul by a telegram, for urgent business. He asked the editor of the American Bee Journal to preside at the meeting until after the election of new officers. The Vice President elected in 1917, Mr. Polhemus, died within a week after his election, so that the absence of President Jager left the meeting without a presiding officer.

The Secretary, John C. Bull, was also absent and Hamlin B. Miller, of Marshalltown, Secretary of the Iowa State Association, was appointed as secretary pro tem. Before leaving, President Jager called the attention of the members to the fact that one of the most weighty actions the National Association was ever called upon to perform was perpetrated in 1917, when he and several others appeared before the officials of the National Agricultural Department to solicit the establishment of extension work. By the influence brought to bear, fourteen extension workers were appointed to visit the different States, and Dr. Phillips stated that they were holding not less than nine meetings of local organizations daily in different parts of the country, so that the education of uninformed beekeepers is now going on at a rate which will increase greatly the knowledge concerning bees and will check diseases while increasing production.

Very interesting information was supplied by Dr. Phillips concerning the number of circulars sent to beekeepers by the Bureau of Entomology and the replies received showing increased interest There are over 800,000 beekeepers in the United States and nevertheless it is proven that much more honey wastes unharvested than the total amount of sweets of different kinds produced.

Steps have been taken by the Food Administration to supply sugar for feeding bees wherever it is necessary. Also help is extended in getting the delivery of both lumber and coal for the making of apiary implements.

Resolutions were passed commending the work of the Bureau of Entomology and asking for its continuance and extension.

A resolution was also passed asking that the Postoffice Department take means to enable the shipping of bees in combless packages through the parcel post.

The matter of purchase of combless packages of bees was discussed at length and indiscriminate purchase censured. It was the consensus of opinion among the different members that this business of buying and shipping bees from the South in combless packages be confined to supplying only hives full of combs at the proper time. Otherwise more loss than profit would be derived from this business.

Numerous papers were read and much information elicited.

The officers elected for the ensuing year are:

President—David Running, Filion, Mich.

Vice-President—Hamlin B. Miller, Marshalltown, Iowa.

Secretary—Floyd Markham, Ypsilanti, Mich.

Directors—David Running, Floyd Markham, John C. Bull, of Valparaiso, Ind., and Professor Francis Jager, of St. Paul, Minn.

The marketing of honey, the making of honey a staple, were discussed at length. The following resolution was passed

"Resolved, That we view with satisfaction the progress already being made and the wonderful efficiency already attained by the teaching of economic uses of honey by our State colleges and high schools. The National Beekeepers' Association endorses this work and desires in this manner to encourage its continuance.'."

All the sessions were held in the banquet room of the Hotel Burlington, a very convenient place in the extremely cold weather prevailing at the time

Although no place of meeting was selected for 1919, the election of both President and Secretary in the State of Michigan indicates a tendency to hold the next meeting in some central spot of the Middle West.

In spite of the small income, the treasury was shown to have a balance of $133.10 after paying expenses.

Professor F. E. Millen, in charge of apiculture at Ames, made the statement that about 30 of our agricultural colleges are now having courses in beekeeping regularly.

**Ontario Short Course.**—The short course in beekeeping was a great success and our program was carried out without a mishap of any kind. Sixteen attended the lectures on the opening day of the course and the class gradually increased in numbers until one day forty-nine people were present. In arranging the program the more elementary work was dealt with at the first of the course, to form a foundation for the more advanced work to follow. The last half of the course was of particular interest to the more advanced and experienced beekeepers, although every detail was explained as clearly as possible for the benefit of the beginners. Special subjects were assigned to special days so that those unable to attend all lectures could spend their time here to the greatest advantage. Mr. John A. McKinnon, St. Eugene, Ont., handled the subject of queen rearing. Mr. D. Anguish, of Lambeth, at one time a prominent exhibitor of honey at the Canadian exhibitions, delivered the lectures on Comb-Honey Production, Grading and Marketing. Principles were mentioned rather than methods, but in every case a method was described, to more firmly fix the principles in the minds of the class. G. B. Gooderham, B. S. A., Central Experimental Farm, Ottawa, spoke about American foulbrood. Mr. Sladen, Apiarist, Dominion Experimental Farms, was here for the first week of the course.

I very much regretted the unavoidable absence of Mr. Jas. Armstrong, President of the Ontario Beekeepers' Association. He has assisted with his practical talks at many of our courses, but illness prevented him attending. Mr. J. F. Dunn, Ridgeway, assisted me for the greater part of the time and proved a valuable utility man. Mr. Hershiser was also present and gave two very practical lectures.

The teaching of this course will spread over a large area, some members of the class coming from New Brunswick, Pennsylvania, and one from Saskatchewan. They were all enthused with the urgent need for the production of more honey to help relieve the sugar shortage.

Generally speaking, the prospects of a crop are fairly good in Ontario, providing the bees come through the winter in good shape. We had several very cold days—20 to 30 degrees below zero—and in many cases the high price of honey induced the beekeepers to extract rather too closely and the high cost of feeding may have stinted the bees' winter stores and large loss may result from starvation. GEO. F. KINGSMILL.

Toronto, Ont.

---

**California Conditions.**—Just as the hopes of the California beekeepers had reached almost the lowest possible ebb, it suddenly rained, Feb. 17. Now we are all at sea as to the future. Many believe that regardless of the amount of rain that may come, we will not secure a crop from the sages. Personally I do not share the opinion of those who think so. By the time this reaches the readers of this journal we will know more of the season conditions, but I venture the opinion that, should good rains follow through March, with sufficient in April to sustain the moisture through May and June, we may expect a flow from the sages. In fact I should not be surprised to see one of the best sage crops for a number of years if those conditions should prevail. But, on the other hand, if the rains should be very light from now on (March 1), we may expect little from the sages, or indeed any wild flora. There are two factors that, to my mind, have played in our favor, the thorough drying out of the sage being one, the other that there had been so little rain previous to Feb. 17 that the plants were perfectly dormant, the rain having come just at the time the sage should begin its spring growth under normal conditions. It will be all the more vigorous for that reason and will have escaped any great danger of frost. P. C. CHADWICK.

P. S. Much rain has fallen since this was written.—Ed.

---

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

### Semi-Monthly Market News Bulletin

Honey arrivals since last report:

**Keokuk, Iowa.**—No arrivals.

**Hamilton, Ill.**—No arrivals.

**Medina, Ohio**—50,900 pounds from Minnesota.

### Telegraphic Markets from Today's Markets—Jobbing Prices

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report represent the prices at which the "wholesale carlot receivers" sell to the "jobbers.")

**Note.**—Arrivals include receipts during preceding two weeks. Prices represent current quotations.

**Philadelphia**—No fresh arrivals. Practically no demand or movement; market strong, very few sales. Extracted: no sales. Comb honey: very few sales, light amber, No. 2, 22c per pound. Beeswax: no fresh arrivals, no sales.

**Minneapolis**—No fresh arrivals. Supplies very light. Demand good, market strong. Comb honey: 24-section cases Minneapolis best white, 20c per pound; Colorado white, supplies cleaned up, $5.75-6.00 per case. Extracted: no sales reported. Beeswax: no sales reported.

**St. Paul**—No fresh arrivals. Demand moderate, but exceeds supply; market very strong. Comb honey: Minnesota and Wisconsin: No. 1, light, 24-section cases, few sales 25c per pound. Beeswax: no sales reported.

**Kansas City**—No fresh arrivals. Demand limited, movement moderate, market firm; very few sales; all sales in small lots. Comb honey: no sales reported. Extracted honey: Colorado and California white to light amber, 16-18c per pound. Beeswax: no sales reported.

**Denver**—No fresh arrivals. Demand moderate, market strong. Jobbing, no sales reported. Sales direct to retailers; few sales, comb honey $5.50 per 24 section case. Beeswax: receipts light; price to producer 38c per pound.

**Cincinnati**—No fresh arrivals. Extracted honey: demand good, movement fair, market firm; domestic 17-19c per pound; orange and white sage, 22c per pound. Comb honey: supplies cleaned up. Beeswax: demand good, market steady. Average yellow, 43-45c per pound.

**New York**—Arrivals, 1,019 barrels Cuba. Demand good, market strong. Extracted honey: domestic, yellow, supplies light, 20-22c per pound; West Indian, light, 18-19c; dark, 17-18c per pound. Beeswax: 279 bags Cuba arrived. Supplies very light. Demand good, market strong. Yellow, 40-41½c per pound; dark 37½-38½c per pound.

**St. Louis**—No fresh arrivals. Comb honey: no sales reported. Extracted honey in cans, supplies light; bright, 17-18c per pound; dark, 16-16½c per pound. Beeswax: prime, 39c per pound.

**Chicago**—Unreported.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

### Clean Sections

I have a small apiary of 50 hives, producing comb honey only. I find it is a great deal of work in our part of the country to clean the sections of propolis, so it looks well to put on the market.

1. Is there anything on the market to place on these sections, on top, while they are being filled in the super, to keep this gum off the wood? It seems to me that a piece of tin to lay on top of the section, of the same shape as the slat where the section rests on would save an immense lot of work on cleaning honey for the market.

2. Is there any preparation made that you could put on to take the yellow stain off from the wood and make it as white as it comes from the factory? OREGON

ANSWERS.—1. I have never known anything of the kind entirely satisfactory. Even if you should cover them, as you suggest, you would find that the bees would thrust glue between the section and the covering.

2. I doubt there being anything practical in that line.

I have produced many thousands of sections, some covered with wood or oilcloth, but most of them with tops and bottoms entirely exposed to the bees, and I prefer these latter. The tops and bottoms are cleaned *en masse*, taking a superful at a time, first scraped with some steel tool, and then sandpapered, finishing up the edges afterward, as fully explained in "Fifty Years Among the Bees," and a thousand a day is no hard task.

---

### Starting Pound Packages

I want to buy some bees and don't know how to get them started in empty hives without stores. Do you have any circulars that describe method of taking care of bees bought in packages? I have "First Lessons in Beekeeping" and "Dr. Miller's Thousand Answers."

1. Can one buy, say 1 pound of bees and a queen and put them in an empty hive, say April 20, and not give them any stores, and if they need stores, how much would be needed, and what would be best to give them?

2. Should there be foundation starters or full sheets on the brood frames?

3. I have six empty hives and wonder if it would be profitable to buy bees to fill them.

4. I have only one stand of bees and they are very weak and in a box-hive. I want to put them in a frame hive; would it be advisable to move them into the frames now, as I have them in the cellar?

5. How would it be to buy some bees, say 1 pound, to put in with them? IOWA.

ANSWERS.—1. To put bees in a hive without stores April 20, or indeed any time before they can gather, is pretty certainly to invite total loss. Better not to get them before fruit bloom, and, indeed, it may be better not to get them, in your locality, before June. It will be more likely to your interest to get two pounds rather than one. Whether they can gather or not, it is better to give them some stores. The best thing is honey from bees that you know to be free from disease. Likely you haven't that. Then feed syrup of granulated sugar, equal parts of sugar and water; no need to cook it if it is thoroughly dissolved. Let them have two or three pounds ahead, so that there may be no danger of starving if there are a few days when they cannot gather.

2. Give them frames *filled* with foundation. You can give small starters, but will lose money by it.

3. Yes, there's big money in it *if* you manage all right and have a bumper season. But if you have had as little experience as I suspect, you better go a little slowly and try only two or three this year.

4. Don't think of transferring into frames before fruit bloom, and it may be still better to wait until the bees swarm.

5. Yes, it may be all right, if you don't fumble the thing.

### Making Hives

Would it be unlawful for me to build bee-hives for my own use the same size as the 10-frame Tri-State hive, and of the same pattern as the Dadant hive? MISSOURI.

Answer.—I don't think there is any patent to prevent it.

### Doesn't Want Increase

1. I have ten swarms of bees, and as my time is limited, I would like to know how best to manage them to save time, make no increase, and secure a good crop of extracted honey. I have an extractor, three bee-escape boards, sufficient queen-excluders and necessary tools. My bees are in eight double-walled Hilton hives, some containing 8 and some 9 Langstroth frames, and one home-made hive similar to the Hilton hive, and one Protection hive. My greatest trouble so long as I have had bees is that they increase too fast. For instance, last spring I had four colonies to start with and before the end of July I had nine (the tenth one I found in the woods), and about 600 pounds of honey.

2. I have two shallow extracting supers and have been thinking of getting enough more to have one for each hive to give to the queen for more brood-rearing room. What do you think of this?

3. How many supers should I have for these ten hives? I use the deep, or rather, regular Langstroth frames in the supers for extracting.

P. S. It might be well to remark that my hives face the east, and all morning they seem to work good till afternoon, when the entrance is shaded, then they begin to hang out, every day a little more, till in about two weeks, or maybe three, then they will swarm. It seems to me they have enough room. They stand under a large basswood tree. MICHIGAN.

Answers.—1. It seems you had at least one afterswarm. You can prevent afterswarming in the way so often given in this department. When a prime swarm issues, set it in place of the old colony, placing the old colony close beside it, facing the same way. A week later move the old colony to a new stand 6 feet or more away. That's all; there should be no afterswarm. To prevent the first swarm is not so easy a matter, although I've done something at it, particulars of which are given very fully in my book, "Fifty Years Among Bees." But it may suit you better to keep down increase by doubling up. In the fall unite so that there shall be no weak colony left over winter. Then at the beginning of the next season unite until there are no more colonies than you desire, making sure to unite first any colonies that may be weak.

2. It may work well. Try it with part of your colonies, so as to compare. It might not be bad at the same time to try one or two colonies with two stories containing 8 full frames each.

3, Two extracting-supers for each colony will do if you extract often enough; if you don't extract till the close of the season you will need three or more, even up to six if you have a big yield.

### Sweet Clover

1. Will sweet clover grow in Texas? The soil is poor and sandy.

2. Will it grow if sown on waste land among weeds, without covering the seed with soil?

3. When should it be sown and how much seed per acre?

4. Will sweet clover pay if sown for pasturage and then cut for hay?

5. Will sweet clover die the second year of its growth and leave seed again? TEXAS.

Answers.—1. There are very few places in which sweet clover will not grow, and it will probably grow in your locality, only there may be such a thing as having the soil too sandy.

2. Yes; but it will do a good deal better if the seed be tramped in by stock than if it merely lies loose upon the surface

3. It may be sown in the spring, or, indeed, almost any old time, sowing about 15 pounds to the acre.

4. It is very profitable in some places. But the idea of having it do its fullest for bees and at the same time doing its best for hay cannot be carried too far. If you sow it this year, and it does well, you can cut it for hay without interfering with the bees, for it does not bloom the first year anyway. The next year, if you leave it until the bees have had the full benefit of the bloom, it will not make good hay, being mostly sticks; but you may cut it before it is in bloom and then let the bees have the blossoms of the second growth.

5 Yes.

### Bee Outfit From Diseased Colony

1. Would you advise using queen-excluders again that have been on hives that had American foulbrood?

2. Will it be necessary to destroy supers and drawn comb that have been used on diseased colonies?

3. Do bees stay, as a rule, in hives that have been burned out with a blow-torch? MICHIGAN.

Answers.—1. If my bees were entirely free from the disease I should hardly want to use an excluder that had ever been used by a foulbrood colony, even though the risk might be small. If I had used an excluder over a diseased colony in my own yard last year I should not hesitate to use the same excluder again next year.

2. Yes; combs, but not supers.

3. Yes.

### Swarming

One day last summer I had a swarm and before I had it hived another swarm came out from another hive and joined this one. This happened three times. Such butchering of bees and queens I never saw before. By night I had four swarms in hives, but half of the bees returned to their original hives. What is the meaning of this? Do Italians act like that, and would sprinkling them have helped any? MINNESOTA.

Answer.—Bees sometimes seem to have a crazy spell of uniting when they swarm, and one is at a loss to account for it or prevent it, no matter whether the bees be Italian or black. Showering with water might have helped, and possibly it might have done little good.

### Drones

I have 27 swarms of bees, one of which has a hybrid queen which produces a pure Italian drone. There are other hybrids in the apiary which throw pure drones, but are inferior in every way to this one. While the season was a poor one here, this one swarm produced nearly 100 pounds of comb honey and filled ten frames from the late fall flow, while the next best in the apiary produced about one-half as much. They are also wintering better than any of the others. Could I not use this queen to rear drones from next summer, when I plan to Italianize at the beginning of the honey flow, caging the drones from all other hives? KANSAS.

Answer.—Yes, you can encourage drones in this best colony and cage those of the other colonies, but instead of allowing drones to be reared and then caging them it may be better to shave the heads off all drones before they have time to emerge from their cells, and it may not be a bad plan to cut out the drone-comb and replace it with worker-comb or foundation.

### Disposing of Honey in Broken Combs

I have about fifty 2-story, 10-frame size colonies of bees that are old and have been badly handled for several years, and last year nothing was done to them I intend to transfer into new cases and frames with full sheet foundation in the spring On account of bad handling it will be impossible to extract the honey from the frames, as they are more or less broken, and in what I call a bad mess. I find nothing in any of three or four bee books that I have that deals with a method to get the honey out of chunk comb. Can you put me right in the American Bee Journal columns or refer me to some book that deals with proper method? MISSISSIPPI.

Answer.—It isn't the easiest thing to find a way that you will think entirely satisfactory. One way is to set out the combs in question, giving the bees free play to rob out the honey. A good way, if neighboring bees don't get too big a share. You can melt the combs and use the honey for cooking, or make it into vinegar. Indeed, if carefully melted so as not to burn the honey, it may be fed back to the bees at any time when it would not be taken into the surplus supers. Sorry not to give you something more convenient.

### Requeening—Distance to Place Hives

1. When a hive is made queenless, how long would you wait before introducing another queen?

2 Someone estimated that a single bee would only gather about a teaspoonful of honey in a season, providing it lived six or seven months and was able to work all the time. What is your guess?

3. How many miles would that bee fly in all its rounds in that season to gather that honey?

4. My hives are in rows 10 ft. apart and the rows are 12 ft. apart. Is that far enough apart? ILLINOIS.

Answers.—1. Not more than a day or so. Indeed, it may be better to put in the new queen at the same time the old one is removed, planning, however, that she will not be released from the cage until a day or two later.

2. Hard to make any guess. If we assume 25,000 field bees in a colony, and that it gathers 100 pounds surplus and 200 pounds for its own stores, making 300 pounds in all; then dividing that 300 pounds among 25,000 bees, roughly figuring would make about a fifth of an ounce for each bee. But that's counting that each bee spends several months gathering, whereas it spends less than a month.

3. I don't know enough to make an intelligent guess, but I know it might vary very greatly in different places and different years. Even from the same hive on the same day one bee might travel three times as much as another in getting a load.

4. There ought to be no danger to young queens from having hives all facing one way when they are placed so far apart, especially if there are trees or other objects to help mark location. And you can just as well have double the number on the same ground, with no more danger, by putting the hives in pairs, the two hives of each pair almost touching each other.

### Enlarging Broodchambers—Transferring

1. I would like to try a super on hive-body to enlarge brood-chambers. In your answer to "Pennsylvania," April, 1916, you say "It is best to put empty super on bottom." Why? Will it do any good this season for me to enlarge brood-chamber when I unpack, say April. I use 10-frame hives. And is it necessary to exchange them, first one on top and then the other?

2. Have a colony that was hived on only seven full sheets of foundation, the other frames being empty. Want to put them into another hive, as there are so many drones. What shall I do to save the brood in the frames that had no foundation? M. E. B.

Answers.—1. The matter referred to is giving a second story early in the season for the sake of allowing more room for brood-rearing. For years I have practiced this, giving the second story as soon as the first story was filled with brood, and then reducing to one story when it came time to give surplus-supers. My general practice is to put the second story under the first, and this for two reasons. It is at a time of year when it is desirable to conserve the heat as much as possible, and if the additional story be given above the whole of this story it must be kept warm, whereas, if it be given below, no more of it need be kept warm than the bees occupy as they gradually work down. It is also more natural for bees to extend their brood downward, and the bees are slower about starting brood above. No need to exchange stories.

2. One way is to put the new hive under or over the old one, an excluder between (of course the queen will be in the new hive) leaving them thus at least until the worker-brood has emerged.

### Swarm Prevention—Full Sheets of Foundation

1. Removing queen from colonies determined to swarm and cutting out all cells after hearing of first virgin, what per cent of colonies would you expect to go ahead all right (in your locality), with no further effort at swarming?

2. Would this prove a very satisfactory method of control?

3. With Hoffman frames and using full sheets of foundation there is a space of about one-half to five-eighths of an inch not filled at the bottom. Is not this poor judgment, and why do not foundation makers make same a trifle wider?

4. Do you believe in all the principles of the Dzierzon theory? If not, which ones do you reject? OHIO.

Answers.—1. About 100 cent; at least they would make no further attempt to swarm for some time, although a few might do so a few weeks later.

2. Yes, provided you have no better stock with which to replace the queen.

3. Because if the foundation comes clear down to the bottom-bar the foundation will stretch enough to buckle and make bad work. But by using foundation-splints you may have the foundation touch the bottom-bar without any buckling. Foundation makers are glad to make foundation full depth if you so order it.

4. I do not now think of anything in the Dzierzon theory to which I would take exception.

### Does Frozen Honey Granulate?

Referring to your answer to "Ontario," question 2, page 64. I presume you are aware that in this northern country honey does not granulate if kept frozen all winter. I keep a few boxes of comb honey in shallow frames every year and it does not granulate till May, and on those few occasions when I have been compelled to leave extracting till freezeup, even the extracted in 60-pound cans do not granulate if left in the honey house. Of course, many parts of Ontario have a thaw or two, but we get steady cold from the end of October till the end of March. Excuse me butting in. I always thought it was the freezing that kept it from granulating, but might be wrong. MANITOBA.

*Answer.*—Glad to have you "butt in." You have raised an interesting question, the question whether honey that is kept frozen will granulate or not. I think it is generally believed that frequent freezing and thawing tends toward graoulation more rapidly than steady cold, and I've always supposed that even though it might not granulate so readily in a very cold temperature steadily maintained as it would in a frequently changing cold temperature, yet a uniform cold temperature favored granulation more than one uniformly warm. I'm pretty certain it will be found that severe freezing will crack the comb, no matter how steady the temperature. All this refers to comb honey. The case is different with honey subjected to extra ripening, as when it has remained in a hot attic throughout the summer. In that case it will not granulate, neither will the combs crack, no matter how low the temperature nor how much it changes. It is possible that your honey has been ripened more than usual. It is possible, also that I am mistaken about ordinary honey graoulating so long as it is kept frozen.

# Classified Department

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

## BEES AND QUEENS

FOR SALE—Three-band Italians; queens from best honey-gathering obtainable. Untested queens, $1 each; 6, $5; 12, $9. Safe arrival and satisfaction guaranteed.
W. T. Perdue, Ft. Deposit, Ala.

OUR select bred mated queens winter well.
Honeymoon Apiaries, Yakima, Wash.

FOR SALE—First-class Italian queens and bees in season. Send for price list. Free from disease; safe arrival and satisfaction guaranteed. M. Bates, Greenville, Ala., R. 4.

BREEDING QUEENS—I have a few extra choice Italian breeders for spring delivery. Price $5 each.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

OUR BRIGHT ITALIAN QUEENS will be ready to ship after April 15. Untested, 75c each, $8 per doz., or $65 per 100. Safe arrival guaranteed.
Tillery Bros., Georgiana, Ala., Route 5.

FOR SALE—Fine Italian queens at 90c each, $9 per doz. Ready April 15. Safe arrival guaranteed.
T. J. Talley, Route 3, Greenville, Ala.

THREE-BAND ITALIANS ONLY—Queens, packages and nuclei. Untested queens, each $1, 6 $4.25, 12 $8.25. Write for prices in larger lots, also nucleus and packages; booking orders now. If you consider quality, pure mating and low prices I am your queen-breeder. I have adopted Gleanings Code for the sale of bees and queens. H. G. Dunn,
The Willow, San Jose, Calif.

GOLDENS THAT ARE TRUE TO NAME—Queens, nuclei and bees by the pound; we receive hundreds of testimonials annually. Write for list. Untested queens, each $1, 6 $4.25, 12 $8.25. Write for prices in lots. We are now booking orders for early delivery. We have adopted Gleanings code for the sale of bees and queens.
Garden City Apiaries, San Jose, Calif.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDEN Italian Queens, bred strictly to produce Golden bees of the best honey-gathering strain; untested, each, $1; 6, $4.25; 12, $8.25; 100, $60. Satisfaction guaranteed.
L. J. Pfeiffer, Route A, Los Gatos, Calif.

GOLDEN Italian Queens, untested queens, $1 each; six, $4.25; $8.25 per doz., 50, $32.50; $60 per 100. Tested queen, $1.50; one frame nucleus, no queen, $1.25; 2-frame, $2.25; 3-frame, $3; breeders, $5 and $10.
L. J. Dunn, 54 Broadway Ave., San Jose, Cal.

WANTED—10 to 100 swarms of bees not over 50 miles from Bellevue, Ohio.
N. B. Querin, Route No. 7.

THREE-BANDED Italian Queens, untested, one, $1; doz., $9; nuclei and packages with fine queens, 2-fr., $3.75; 3-fr., $4.50; 1 lb., $2.50; 2 lbs., $3.50; 3 lbs., $4.50; June 1.
A. E. Crandall & Son, Berlin, Conn.

THE best Italian stock, three-bands and goldens at $2 50 per lb., with untested queen; 2 pounds, with queen, $4. Rosedale Apiary.
J. B. Marshall & Son, Big Bend, La.

BOTH Italians and hybrid bees at $2.50 per pound with untested queen; 2 pounds, with queen, at $4.
Mrs. T. H. Carruth, Big Bend, La.

FOR SALE—Golden Italian bees; 1-lb. pkg., with queen, $2.50; 2-lb. pkg., with queen, $4; 2-frame nuclei, with queen, $3.50.
L. J. Bond, Big Bend, La.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln, Ill.

FOR SALE—Mott's strain Italian queens. Plans, "How to Introduce Queens and Increase," 25c. E. E. Mott, Glenwood, Mich.

HAVE YOU, Mr. Producer, been getting all for your honey that you could expect? If the price you have been getting has been less than the largest price you have read about, let the Domestic Beekeeper, Northstar, Mich., help you dispose of your 1918 crop. Investigate.

WARRANTED QUEENS from one of Dr. Miller's breeders, $1 each; $10 per doz. Package bees, $1.75 per pound, $3 per 2 pounds. Add price of queen wanted.
Geo. A. Hummer & Sons, Prairie Point, Miss.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed. O. D. Rivers,
Route 4, Honey Grove, Texas.

GOLDEN ITALIAN QUEENS—About May 1; good honey gatherers; no foulbrood; select tested, $1.50; tested, $1.25; untested 85c, 6 $4 75, 12 $9. No nuclei or bees for sale.
D. T. Gaster, Rt. 2, Randleman, N. C.

THE Sinking Creek Queen Introducing Cage; 5 years' test of absolute success; indispensable for introduction of valuable queens; also several queens can be kept in one hive in perfect harmony; small and works on the brood comb; especially adapted for queen breeders. Price 60c per doz., 2 doz. for $1; post paid. Sinking Creek Apiaries, Gimlet, Ky.

SWARTS GOLDEN QUEENS produce golden bees of the highest qualities; satisfaction guaranteed. Mated $1, 6 for $5; tested $2.
D. L. Swarts, Lancaster, O, Rt. 2.

SAVE THAT QUEENLESS COLONY!—Introduce a vigorous tested queen. We can supply them by return mail for $1.25; $14 per doz. Queens were reared last fall and wintered in four-frame nuclei. Three-band Italians only. Never a case of foulbrood in this locality. Satisfaction guaranteed on every queen. J. W. K. Shaw & Co.,
Loreauville, La.

FINEST ITALIAN QUEENS, June 1 to November, $1 each; 6 for $5. My circular gives safe methods; free. J. W. Romberger,
3113 Locust St, St. Joseph, Mo.

ABOUT APRIL 15 I will again be ready to fill orders for untested queens of my fine strain of leather-colored Italians. I breed no other race. Choice tested and breeding queens at all times. Satisfaction guaranteed. Circular free. Untested queens $1 each, $9 doz.; choice tested $1.50 each; fine breeders $5 each.
C. S. Engle, Beeville, Bee Co., Texas.

FOR SALE—One to fifty colonies of Italian bees in ten-frame hives. Bees and hives are in A 1 shape; no disease. Price $10 per colony. John C. Bull,
234 Indiana Ave., Hammond, Ind.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J B. Brockwell, Barnetts, Va.

FOR SALE—8-frame colonies, extra fine strain Italian bees. with queens, $7 each; all free from disease, with stores for winter; standard full depth self-spacing Hoffman frames, all straight combs in new one-story single-wall hives; o. b here. Wilmer Clarke,
Earlville, Mad. Co., N. Y.

PURE 3-banded Italian queens, untested but warranted, $1; 6, $5; tested, $1.50; 6, $8. Last year's tested queens, clipped, $1. Good fat nuclei and full colonies in abundance. Write for price list. J. F. Diemer,
Liberty, Mo.

**Vegetable GARDEN 25c** Lettuce, Cucumber, Radish, Beet, Carrot, Parsnip, Peas and Beans. Enough for your garden, postpaid. Order early.
**Pine Tree Nursery, Round Pond, Me**

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolans. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo, Leon So., Tex.

THREE-BANDED Italians; untested queens in April and May, one, $1; 6, $5; 12, $9. Tested, $1.50 each. One-pound packages of bees, $1.50 each; two-pound packages, $2.50 each. Add price of queens if wanted. If you want as many as 50 packages write for prices and discounts on early orders. Safe arrival and satisfaction guaranteed. No disease, and all queens purely mated.
Cotton Belt Apiaries, Box 83, Roxton, Texas.

THREE-Banded and Golden Italian Queens and pound packages in spring, from the Sunny Southland.
Grant Anderson,
Rio Hondo, Texas.

FOR SALE—One and two-pound packages bees with Italian queens; April and May.
E. Eggeman, Allenville, Ala.

FOR SALE—Good Italian queens, tested, $1, six for $5.40; untested 75c, six for $4.25; nuclei with untested queen, 2 frames $3.25, 3 frames $4.25; with tested queen, 2 frames $3.50, 3 frames $4.50; 1-lb. package, with untested queen, $2.25; 2-lb. package, $3.25; with tested queen, 1-lb. package, $2.50; 2-lb. package, $3.50.
G.W.Moon,
1904 Park Ave., Little Rock, Ark.

GRAY CAUCASIANS—Gray Carniolans, 3-banded Italians; gentle, hardy, prolific; cap beautifully white; are "Mendelian" bred to superior drones, from choicest mothers; results are obvious. Apiaries widely separated. Quinn's queens of quality have no superiors. "There's a reason."
Chas W. Quinn,
609 W. 17th Ave., Houston Heights, Texas.

FOR SALE—The very best three-band Italian bees that money and skill can produce. If it is a bargain you are looking for send your order this way. All our bees are on standard size Hoffman frames, wired and full sheets foundation. Extra prolific and good honey gatherers; free from disease. Safe arrival and satisfaction guaranteed. We quote you without queen as follows: Three-frame nuclei, $2.75; two-frame nuclei, $2.25; three-pound package bees, $3.75; two-pound package bees, $2.75; one-pound package, $2. If queen is wanted add her price to bees wanted. Young untested queens, $1 each; young tested queens, $1.25 each. Full-depth ten-frame bodies filled with full-drawn combs, $2 each. Ideal supers, 5 11-16 inches deep, 10-frame full drawn combs, $1.25 each.
The Hyde Bee Company,
Floresville, Tex.

SELECT bred mated queens, $1 each, prepaid. Bred from the selected stock of eleven yards totaling over 1,500 colonies of bees run for commercial honey production. Only one grade of queens—no culls sold, $10 per dozen, prepaid.
Honeymoon Apiaries,
402 N. Fifth Ave., Yakima, Wash.

## HONEY AND BEESWAX

FOR SALE—Two barrels amber honey, boneset, smartweed and goldenrod; 104 gallons in lot, and best offer takes it.
J. F. Archdekin, Bordelonville, La.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered.
The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa, Monroe, Wis.

EXTRA Fancy Montana Extracted Honey in new 60-lb. cans, $12 per can; 6 pails weighing each 10 lbs., net per case, $12.60; 6 pails weighing each 10 lbs. gross, per case, $12. Last and best of the crop.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t
173 S. Water St., Chicago, Ill

WANTED—Beeswax at all times in any quantity, for cash or in exchange for supplies.
Dadant & Sons, Hamilton, Ill.

## SUPPLIES

ARE YOU keeping well posted on the crop condition and price prospects for your 1918 crop of honey? If not, you should! The Domestic Beekeeper, Northstar, Mich., will keep you posted on crop condition and price prospects as recommended by the Committee of the Chicago Northwestern Association. This committee, through the Domestic Beekeeper, saved producers a half million dollars on their 1917 crop of honey and expects to do even better on their 1918 crop. Are you one who is not taking advantage of an opportunity never before offered to secure all your crop of honey is worth? This opportunity is worth investigating.

FOR SALE—200 wire queen excluders, 45c each.
D. G. Little, Hartley, Iowa.

FOR SALE—A 2-frame Novice Extractor for L-frames; good as new. Price $9.
Philip Jobll, Turkey River, Iowa

WHITE SWEET CLOVER ROOTS, one year old, $2 per hundred; express, collect. Will bloom June to November. Fine for bees. Special prices on large quantities. Unhulled sweet clover seed (white variety), 25c lb., $20 per cwt. Rich soil for inoculation from sweet clover field, $1 per cwt.
A. G. Parker, Agt. American Express Co.,
Maxwell, Neb.

CLOSING OUT—Entire stock of bee supplies; send bill of goods needed for my prices; no catalogue. A few No. 2 4x5 sections, $4 per 1,000.
H. S. Duby, St. Anne, Ill.

FOR SALE—Pure maple syrup, in one-gallon cans, $2.50; six gallons or more at $14.
The M. C. Silsbee Company, Avoca, N. Y.

FOR SALE—Second-hand hives; Danzebaker 8-10-frame hives and frames; 2 empty bodies, 9 bottoms; 11 covers; 10 supers for sec. 4x5x1 3-8; and fences and sec. holders; sell the lot for $19.50, free on board Utica, Ill., R. I. & P. R. R.. Half price of new; no foulbrood.
A. Mottaz, Utica, Ill.

*"Griggs Saves You Freight"*

**TOLEDO, O.**

Say, Mr. Bee Man, have you placed that order for supplies yet? If not, remember we not only save you freight, but time and money as well.

**DELAYS ARE DANGEROUS**

But don't delay, as Railway Embargoes are all the rage now, and you may be caught.

**LARGE NEW STOCK ON HAND**

All ready to ship out, direct from ROOT'S, who know how to make good goods.

**HONEY AND BEESWAX**

Always wanted; cash or in trade. Send for FREE CATALOG.

**S. J. GRIGGS & COMPANY**

**Department No. 24** **Toledo, Ohio**

*"Griggs Saves You Freight"*

**BEEKEEPERS**

**KEEP IN TOUCH WITH**

**Leutzinger & Lane**

**236-238 Drumm St.**

**SAN FRANCISCO, CALIF.**

**Buyers of EXTRACTED and COMB HONEY**

**Shippers and Exporters of HONEY**

**[ The WORLD is Our Market ]**

# "Practical Queen-Rearing"

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointer in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.

(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

# Queens That Will Please

Over 20 Years of Careful Selecting and Breeding

They are bred from **Imported** stock, the very best for honey gathering and gentleness. They are not given to swarming and are highly resistant to diseases. Give me your order, and after you have given my queens a fair trial, if you are not satisfied in every way that they are as good as any you have ever used, just return them and I will send you queens to take their place or return your money with any postage you have paid out on returning the queens.

**Prices April 1 to June 15**

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Selected untested | 1.15 | 6.00 | 10.00 |
| Tested | 1.50 | 8.00 | 17.00 |
| Selected tested | 2.00 | 11.00 | 20.00 |

**Guarantee.**—You take no risk in buying my queens, for I guarantee every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction.

**L. L. FOREHAND, Ft. Deposit, Ala.**

## The Severin Steam Capping Melter

And Separator combined. The best on the market. Five working parts in one. Though compact, has almost 5 feet of melting surface, with surplus steam to run your knives. Has an upper screen for slumgum when running white honey; also slumgum basket in separator for amber.

**Manufactured by F. J. SEVERIN, Imperial, Calif.**

FOR SALE—Two-frame Cowan reversible extractor, cheap; too small.
F. O'Donnell, Rush City, Minn.

SWARMING CONTROLLED—No additional fixtures needed; unnecessary to clip queens; done solely by manipulation. Successfully used eight years. For particulars address
Trimble & Thompson, Wapello, Iowa.

CONSERVATION PASTE—Costs less than 1c per pint; will stick your label on anything any time; easily and quickly made; no boiling; simple ingredients; ready for use in 30 seconds. Send 25c for formula. Money refunded if not satisfactory.
Sunnyside Apiaries, Fromberg, Mont.

NORTHWESTERN BEEKEEPERS — Save time and freight charges by ordering supplies near home. Best standard goods, factory prices. Send list of wants, and I will quote lowest prices. Catalog upon request.
George E. Webster, Valley View Farm Apiary, Sioux Falls, S. Dak.

FOR SALE—One thousand beehives with supers; three-fourth dovetailed, balance halved together at corners and nailed both ways. Hoffman frames throughout. We will guarantee them to be sound and free from disease. Will sell all or any part at about half what new hives will cost. Apply to The Hyde Bee Co., Floresville, Texas.

"BEST QUALITY" comb foundation for L. or H. frames; 20-pound lot; med. brood. 55c; light brood, 60c. Pure natural beeswax, not "Weed process."
J. J. Angus, Grand Haven, Mich.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

## HONEY LABELS

SOUVENIR Bee Postal Cards, 5 for 10c; "Songs of Beedom" (10 songs), 20c, all postpaid. George York, Sandpoint, Idaho.

## WANTED

WANTED—50 to 200 colonies of bees, preferably near home.
H. G. Quirin, Bellevue, Ohio.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—300 or less colonies of bees for cash and spring delivery. Correspondence, with full particulars, solicited.
A. W. Smith, Birmingham, Mich.

WANTED—Bees; 1 to 100 colonies.
C. O. Smith 5446 Cornell Ave., Chicago.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—May and October numbers of the American Bee Journal for 1917 that are in good condition; will pay 10c each. Please mail carefully so the wrapper covers the entire Journal. American Bee Journal.

WANTED—Bees, and two-frame extractor.
I. M. Waldron, Garnet, Mich.

WANTED—Second-hand honey extractors; tell me what you have and price; also wax presses. W. D. Soper, Jackson, Mich.
Dealer in all kinds of Bee Supplies.

WANTED 50 to 75 Colonies of bees in standard hives Leo Wand,
Box 4, Elizabeth, Ill.

## SITUATIONS

WANTED—Industrious student helper, not subject to draft, to work in apiary and garden. W. D. Wright, Altamont, N. Y.

WANTED—Extracting outfit in the south or southwest in good location; give full particulars in first letter. A. Carder,
Constance, Ky.

SOUTHERN BEEKEEPERS, save money on comb foundation. Send me your beeswax to be worked, for cash or on shares. Terms the lowest, and satisfaction guaranteed. Send for terms. E. S. Robinson, Ft. Myers, Fla.

WANTED—Two bee men for comb honey for 1918. State age, wages and experience.
B. F. Smith. Jr., Fromberg, Mont.

BEEKEEPERS, LOOK HERE!—Young man 26, of good habits, with theoretical but no practical experience, has some capital to invest with service. If you want an energetic, interested partner, get this fellow.
H. Hermansen,
3232 1st Ave. S, Minneapolis, Minn.

WANTED—Man to work with bees, season 1918; state age, experience and wages on basis of board furnished by us. Address
The Rocky Mountain Bee Co., Billings, Mont.

WOULD YOU like to receive four or five hundred dollars per hundred more for your 1918 crop of honey than the big buyers will offer you? The Domestic Beekeeper, which will cost you but $1 per year, will show you how. This is no guesswork; we have done this very thing with hundreds of our subscribers on their 1917 crop, and are willing to do the same by others. You will make your greatest 1918 mistake if you do not, every one of you investigate the work the Domestic Beekeeper is doing for its subscribers, along the line of buying and selling for them.

WANTED—Can take two students for season of 1918; board given in exchange for work, and more if season is good; running ten apiaries.
R. F. Holtermann, Brantford, Ontario, Can.

WANTED—Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

WANTED—Expert comb-honey man, with references, to handle 700 stands of bees. Good proposition to right man.
Hagerman Valley Bee and Honey Co.,
Hagerman, Idaho.

## FOR SALE

FOR SALE—Wishing to retire from active business, I offer for sale 300 colonies bees in 8 and 10-frame L. hives; 750 full depth extracting supers, with combs; 400 section honey supers; 300 honey boards; 75 escape boards; eight-frame power extractor, with honey pump; four H. P. gasoline engine; saw with dado, planer heads and attachments for making supplies; a complete apiary in No. 1 condition; good location. 1917 crop was 14 tons honey. Will also sell my home place of ten acres, 5-room house and No. 1 improvements, near to a $5,000 schoolhouse. Will sell home separately and give terms.
J. R. Marlow,
R. D. No. 1, Weiser, Idaho.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling.
W. M. Penrod, Ronneby, Minn.

FOR SALE—Small fruit farm and bees, cheap.
W. H. Gray, Chillicothe, Ill.

LAST FALL Mr. Smith asked us our advice on when best to sell his crop of 15,000 lbs. of clover extracted honey. We answered him by advising that he hold until May, unless he got a good round price for it before. He could at that time have taken something like 12c per pound for it. He held it. At our Michigan State Convention last December, he again asked what we thought about the future price of honey. He could then get 17c per pound for it. We advised him to hold. He sold the entire crop the other day on board the cars for 18½c per pound. Mr. Smith's case is only one in hundreds of cases where producers have done well by following the advice of the Domestic Beekeeper. We want every beekeeper who has honey to sell to send in his dollar for the Domestic Beekeeper during 1918. We have the back numbers, so can begin your subscription with the January number, thus making your volume complete. Do it today, and at the end of the year get your dollar back if you think you have not received its worth.

---

## Notice to Bee-Keepers

We are booking orders for combless packages, for April, May and June delivery, at the following prices:

1-lb. package, $1.80 each; twenty-five or more, $1.70.
2-lb. package, $2.90 each; twenty-five or more, $2.90.
3-lb. package, $3.90 each; twenty-five or more, $3.80.

If queens are wanted, add 75c each to above prices. We will only have tested and breeding queens to offer until June 1, as we will need all our queens for the package trade.

Price of tested queens, $1.50 each.
Breeding queens, $3 each.

The high cost of all material, and labor, compels us to raise the price on our packages. We guarantee safe arrival to your express office. Our bees are free from all disease and are of the best Italian strain.

P. S.—We do not use a frame of brood or any comb at all in our packages, as has been stated by others; this is false.

**References**

Apalachicola Slate Bank and Bay City Packing Co., Apalachicola, Fla.

If you send postoffice money order, have same drawn on Apalachicola, Fla.

**MARCHANT BROS., Sumatra, Fla.**

---

## Did You Get Caught Last Summer?

Today is not one bit too early to order your Bee Supplies. If you should wait until July 1, we would try just as hard to handle your order promptly, but you know what embargoes and freight congestions mean, especially if you were one of thousands whose goods were tied up in transit last year until the honey season was over.

IF WE ALL MAKE ONE GOOD, LONG, STRONG PULL TOGETHER, we won't feel like slackers, and after the war is over we won't feel like sneaking out of sight when war times are mentioned.

Our part is to make supplies as good as we can and as fast as we can—your part is to give your bees the best care you know how to give them, and to make them produce all the honey possible.

To do this YOU MUST HAVE PLENTY OF HIVES, SUPERS, FRAMES, FOUNDATION, EXTRACTORS, SMOKERS, PLENTY OF EVERYTHING used in your work, and YOU MUST HAVE THEM IN TIME TO USE THEM.

THE GOVERNMENT IS SHIPPING HONEY TO THE BOYS IN FRANCE—IT HELPS KEEP THEM FIT. We're trying to do our part. Let's pull together and help the boys take another trench. Don't wait another day about sending us your order.

**KRETCHMER MFG. CO.**
COUNCIL BLUFFS, IOWA

Beekeepers' Supplies, Tanks, Grain Bins, Silos. Green Catalog free.

---

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

### THE ONLY BEE PUBLICATION IN CANADA

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.

Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive and practical monthly magazine.

Well illustrated and up-to-date. Subscription price postpaid.
Canada, $1.00 a year. United States, $1.25 a year. Foreign, $1.50 a year.
Sample copy sent free on request.

**The Horticultural Publishing Co., Limited, Peterboro, Ont., Can.**

# Crop Report and Market Conditions

For our reports for April number we sent out the following questions to reporters:

1. How have bees wintered—what percent of loss?
2. Condition of bees—Strength and honey.
3. Honey plant and drought conditions?
4. What amount of increase will be made?
5. Extracted or comb, are many changing?
6. Honey prices—are any buyers offering for 1918?

### THE WINTER

Throughout the whole northeast the winter has been exceptionally prolonged this year, bees not getting a flight for nearly two months. This combined with short stores in many instances has led to severe losses, especially with the inexperienced beekeeper. Average run from 5 to 15 per cent loss with the experienced beekeeper up to 75 per cent loss with the inexperienced. One reports 49 lost out of 50.

In the southeast the losses have been small, probably not over 5 per cent, with the exception of Kentucky, which shows a 10 per cent loss.

The central west shows about the same loss as the northeast, with cellar wintered bees in good shape where amply fed before cellaring.

Texas has had big losses, ranging in the estimation of one well informed, at from 25 to 50 per cent, depending upon the locality. Losses here have been caused by a combination of hard winter and extreme starvation, owing to the drought.

The west shows average losses, as does California, except that one or two reports show larger losses on account of disease among the bees, in itself a bad sign.

### CONDITION OF BEES

In the whole section east of the Mississippi River and north of the Ohio, bees are not in normal shape. Many colonies are weak, and a larger number show the effect of poor stores, with a shortage of honey in many instances which will lead to much loss.

In the southeast conditions are the best in many years. The season opened finely, new honey is already coming in and bees are exceptionally strong. This will be a boon to the commercial queen breeders who had such a hard time last year to pay expenses on account of the extremely unfavorable weather all through the spring.

All cellar wintered bees seem strong in the north. This is also the case in Colorado and other western States. The winter has been very mild in Idaho and Washington and bees are in very good shape.

In California bees are a month behind the usual and seem short in stores, besides being weak.

### HONEY PLANT AND DROUGHT CONDITIONS

A blanket of snow has covered the whole northern half of the country since eary winter, which in itself is conducive to the best growth of clover. Where this snow has melted to allow reporters to judge, clover seems to be in much better shape than counted on last fall, though there is little likelihood that clover will be as abundant as in 1916, except in a few favored localities.

It has been a dry winter in the South and is dry yet. Rain is needed. There have been, recently, rains in Texas that have brightened the outlook there, though much more rain is needed. The spring is very late there.

Colorado has been dry, but prospects are not unfavorable to a good crop. Alfalfa is all right. Sweet clover should have more moisture to put it in the best shape. There has been no drought in Idaho and Montana, as well as Washington, and conditions are "lovely."

California has been very dry, so dry, in fact, that many beekeepers were figuring on a short crop. Recent rains have been copious, however, and though the rainfall at this writing is not up to normal, prospects are more favorable with each day.

### INCREASE

In all parts of the country, wherever condition of bees will permit there will be large increase. Certain sections will do well, however, to regain their 1917 strength by such increase while in other sections it is likely that 50 to 75 per cent increase over last year will be made. It would not be far off to assume that there will be at least a 15 per cent increase in holdings of bees the country over, and such increase will be attempted early so as not to interfere with the crop, but rather to greaten it.

### COMB TO EXTRACTED

Many are changing. Supply dealers are experiencing a much greater demand in proportion for shallow and deep frames and extracting supers. The change to extracted will occur mainly, however, with the experienced producer. The small beekeeper with only a few colonies will do little changing.

To show the trend, however, one of the larger comb-honey producers of Colorado, who has comb equipment throughout, will run 15 per cent of his bees to extracted this year.

### HONEY PRICES AND OFFERS

Comb honey is practically cleaned up, and extracted nearly so. In fact, there is more demand now than could be supplied if every pound of honey in the country were immediately placed on the market. White honey is selling for around 20 cents per pound and finds ready buyers.

Reporters state that one or two large bottlers are already "feeling out" the 1918 situation, but are making no offers. One reporter was offered 10 cents for his whole crop, which he promptly refused. Another stated that he would not sell for less than 16 or 18 cents for white extracted.

Foreign buyers are already active. We know of two inquiries, one for fifty tons and another for one hundred tons, but with no definite prices offered. With the decrease of the submarine menace by fall and the subsequent release of allied shipping space, the demand on the part of our allies should be greater than in 1917.

We see no reason for pessimism on honey prices. They should be the equal of 1917, even if the crop proves to be large, as early indications seem to promise.

One large honey dealer states that he sees nothing to indicate a price of less than 15 cents for average white extracted, and it would be our opinion that it would be a mistake to contract ahead early at a less basis than this. The sugar shortage of our allies and necessarily of ourselves, is far from entirely relieved. Nor is it likely to be in the near future. It behooves every beekeeper to produce to the utmost this season to help relieve the shortage.

## QUEENS ═══ BEES ═══ QUEENS

**Three Banded and Golden Italians; the best *of* either**

They are hustlers; gentle to handle; cap their honey white; are very resistant to European foulbrood. We have added Mr. B. M. Carraway's queen-rearing outfit to ours and have with us one of his assistants, so can fill all orders promptly. Had fine success shipping bees last season in our newly devised cage and method of feeding, a number of shipments going as far as Idaho and Wyoming. Mr. R. B. Mills, Corinth, N. Y., wrote, "Bees arrived in fine shape, not 50 dead bees to the cage, 2-lb. size." Satisfaction and safe delivery guaranteed. Get your order in early. Reference: The Guaranty State Bank, Robstown, Texas, or the City National Bank, Corpus Christi, Texas.

| | 1 | 6 | 12 | 50 | 100 | |
|---|---|---|---|---|---|---|
| Untested Queens | $1.15 | $ 6.35 | $11.50 | $43.70 | $ 85.00 | Add price of |
| Select Tested | 2.50 | 11.50 | 20.70 | 74.75 | 138.00 | Queens wanted |
| Bees, one-pound package | 1.75 | 9.80 | 18.40 | 74.75 | 138.00 | to packages. |
| Bees, two-pound package | 2.90 | 17.25 | 83.95 | 132.25 | 240.00 | |

CIRCULAR FREE.

**NUECES COUNTY APIARIES, Calallen, Texas**

**Will there be** a freight embargo on your Honey crop?
The Honey flow does not wait for a delayed shipment *of* Supplies.

**ORDER NOW**

## WESTERN HONEY PRODUCERS SIOUX CITY IOWA

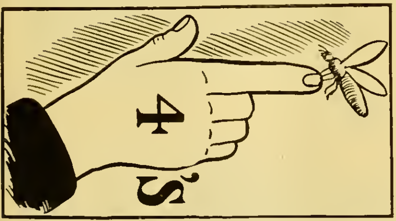
**Lewis's Beeware** THE TWO BEST LINES **Dadant's Foundation**

We buy Honey and Beeswax

Wax Rendering a Specialty

### WHEN YOU TAKE YOUR BEES OUT OF THE CELLAR

Some will be missing, some with inferior queens; all of these will be weak. You will want to strengthen them up as soon as possible, so they will be in good condition for the early flow.



Then Get Some of

## FOREHAND'S THREE BANDS

THE THRIFTY KIND

Over a quarter of a century of select breeding brings them up to a standard *surpassed by none but superior to many.*

Ours are the Imported Queens, Americanized. This makes them light in color, but they still have the fine qualities of their imported mothers. They are thrifty, hardy, gentle and beautiful.

Deposit your order now and insure prompt delivery. Only one-fourth cash down. We begin shipping April 1.

We guarantee pure mating, safe arrival and satisfaction.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 1.25 | 7.00 | 11.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

WRITE FOR CIRCULAR.

**W. J. FOREHAND & SONS, Fort Deposit, Ala.**

## TYPEWRITER SENSATION

$3^{00}$ a A Month Buys Visible Writing **L. C. Smith**

Model No. 5 perfect machines only of standard size with keyboard of standard universal arrangement—has Backspacer—Tabulator—two color ribbon—Ball Bearing construction—every operating convenience. Five Days Free Trial. Fully guaranteed. Catalog and special price sent free.

**HARRY A. SMITH, 314 -- 231 North Wells Street, CHICAGO, ILL**

PAT. APPLIED FOR

## C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

## HONEY JARS

We carry several styles of honey jars, the most popular being the 1-lb. screw cap at $6.50 a gross. If you need shipping cases, we have them. Catalog of supplies mailed upon application.

We have a fair stock of light amber and amber honey. Write for prices.

**I. J. STRINGHAM**
**105 Park Place, New York**
**Home Apiary, Glenn Cove, L. I.**

## BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and quality. Write for catalog.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

## Three Banded Italian Queens .. Bees by the Pound .. Golden Italian Queens

Twenty-Two Years of Select Breeding gives us Bees of Highest Quality—Bees of Unusual Vitality—
Bees Resistant to European Foulbrood.

**PRICE LIST OF QUEENS**

Untested..................$1 00—25 or more, $ .90 each    S. Untested ..............$1.10—25 or more, $1.00 each
Tested .................. 1.50—25 or more, 1.40 each    S. Tested ................ 1.75—25 or more, 1.60 each

**PRICE LIST OF BEES BY THE POUND** ( Without Queens )

1-lb. Packages ..........$2.00 each    2-lb. Packages ..........$3.50 each    3-lb. Packages ..........$4.50 each
25 packages or more, 5% off above prices. If Queens are wanted, add price.

10,000 Pounds *of* Bees ══ Annual Capacity ══ Italian Queens, 15,000

SAFE ARRIVAL AND SATISFACTION WE GUARANTEE

**M. C. BERRY & COMPANY, HAYNEVILLE, ALABAMA, U. S. A.**

## NOTICE!
## Beekeepers' Supplies

¶ We are now located in our new plant, equipped with the latest machinery for making Supplies. Write for catalogue, which will be ready for mailing in January.

¶ We can save you money, no matter how large or how small your order is. A trial will convince you—Quality First.

¶ We are also equipped to render your Wax from old comb and cappings. Our charge is only 5 cents per pound for the Wax rendered. Our steam press extracts every particle of wax possible to get.

¶ Give us a chance to bid on your wants. Write for catalogue today. All correspondence cheerfully answered.

**THE M. C. SILSBEE CO.**
**AVOCA, NEW YORK**

## Now Is The Time To Buy Your Roofing!

**CHICAGO HOUSE WRECKING CO.**

Quick action on your part is really necessary if you wish to get your share of these unheard of savings. So, don't delay—sit right down and write your order **now.** Every offer below is covered by our satisfaction or money-back guarantee.

AJAX
$1.07
Per
Roll

Corrugated
$2.50
Per
Square

### Order Today From This Bargain List!

**Ajax high grade rubber surfaced Roofing; put up 108 sq. ft. to the roll.** Complete with nails and cement. Lot No. GC302, 3 ply, roll $1.27; 2 ply, roll $1.17; 1 ply, roll .................... **$1.07**

**Rawhide Stone Faced Gold Medal Roofing guaranteed 15 yrs.** Rolls contain 108 sq. ft., nails and cement included. Lot No. GC303. Roll **$2.20**

**Our famous Rawhide Rubber Roofing, 3 ply, guaranteed for 12 years;** a high grade covering. Rolls contain 108 sq. ft., nails and cement included. Lot No. GC304, 3 ply, roll $1.50; 2 ply, roll $1.40; 1 ply, roll **$1.20**

**10,000 Rolls of Extra Heavy high grade Roofing; Red or Gray Slate** Coated, Rock Faced, Brown Pebble Coat, Double Sanded, Mineral or Mica Surfaced. Lot No. GC305, roll 108 sq. ft. with nails and cement **$1.90**

**28 gauge, painted, 2½ in. corrugated overhauled siding sheets;** 5½ ft. long, Lot No. GC306, 100 sq. ft. .................... **$2.50**

**26 gauge painted 2½ in. corrugated overhauled roofing sheets,** Lot No. GC307, 100 sq. ft. .................... **$3.00**

**24 gauge Extra Heavy painted 2½ in. corrugated overhauled** sheets for roofing barns, granaries, etc. Lot No. GC308, 100 sq. ft. **$3.50**

**If you need further information before ordering, send us a rough sketch of your building showing size of roof, length of rafters, etc. Mention the kind of roofing you wish and our low freight paid prices will follow.**

ADDRESS OWNERS: **HARRIS BROTHERS CO.,** Dept. GC- 273
35th & Iron Sts., Chicago

## Bigger Fruit Profits

The fruit grower of today is reaping his greatest profits by keeping in close touch with the progress of the industry and developments.

**Green's**
**American Fruit Grower**
**"The National Fruit Journal of America"**

through its many articles on growing, marketing and related subjects, points the way to bigger fruit profits. A sample copy will be sent you on request; better still, take advantage of our rate of

**3 Years for $1.00**

which brings you 36 copies of Green's American Fruit Grower—filled from cover to cover with money-making suggestions.

**GREEN'S AMERICAN FRUIT GROWER**
**Chicago, Illinois**

Write for Price List and
Booklet descriptive of
**HIGH GRADE**
**Italian Queens**
And Bees by the Pound
**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

### Three-Banded Italian Queens and Bees

I am now booking orders for spring delivery of my best superior breeders. They are gentle, hustlers; winter well, not inclined to swarm. There has never been any disease in my apiaries. Untested, 75c; 6, $4; 12, $7.60; 100, $60. Select untested, 90c; 6, $5.25; 12, $10; 100, $75. Tested, $1.25; 6, $7.60; 12, $14. Select tested, $2 each. One-pound package without queen, $1.25; 12, $14. Two-pound package without queen, $2.25; 12, $26. When queens are wanted with pound packages, add queens at prices quoted above. Five per cent discount on all orders received before February 1. I guarantee safe arrival and perfect satisfaction.

S. D. CHEATHAM,
Route No. 4, Greenville, Ala.

**SEEDS** Collection of High-Grade Flower Seeds. **Fifteen Choice Bulbs** **10c**

**Old Homestead Nursery, Round Pond, Maine**

MARSHFIELD GOODS

BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality**; **best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases**.

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

EARLY ORDER DISCOUNTS WILL

Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

A BIG STOCK OF

BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

PORTER BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

FREEMAN'S FARMER North Yakima, Wash.

**Successor to Northwest Farm and Home**
**69 YEARS OLD**

If you want a descriptive and agricultural magazine, it will inform you all about the methods in the Pacific Northwest.
Send One Dollar and have the magazine sent for one year. Cut rate of one-half price now on.

ORDER YOUR

BEE SUPPLIES

EARLY

**We want you to have our catalogue. Send for one.**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

**Archdekin's Fine Italian Queens and Pound Packages**

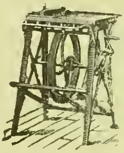
Untested queens, 75c each, 6 for $4.25; doz., $8.00; select tested, $1.25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says. "We cut with one of your Combined Machines last winter 60 chaff hives with 7-in cap. 100 honey-racks, 600 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# Don't be too late—

**For Your Country**

Do the
Most
Efficient
Beekeeping
you can
and
Boost the
Third
Liberty Loan
Campaign

To get those hives, frames, sections and other supplies you will soon be needing.

We wish we could effectually impress upon the minds of all beekeepers the *absolute necessity* for ordering early. Did you ever wait impatiently for supplies when a big honey-flow was on? Did you not then resolve to order earlier next time?

## Then Do It!

Another month may be too late. Express and freight deliveries are slower than they have ever been before.

Send your order to our nearest service branch.

**The A. I. ROOT COMPANY, Medina, O.**

St. Paul
New York
Philadelphia
Chicago
Indianapolis
San Francisco
Los Angeles
Norfolk

# BECAUSE IT LASTS

## That is One Argument in Favor of Cypress as a Beekeeper's Lumber

CYPRESS RESISTS ALL ROT INFLUENCES

CYPRESS LASTS PRACTICALLY FOREVER

There are many qualities that make the value in lumber, depending, of course, on the uses to which they are put. But of all virtues that of **endurance** comes first. The wood that resists rot influences longest, especially when the wood is used in a service by which it is exposed to wet and dry conditions and earth contact—that wood is accredited with being able to give the user the greatest INVESTMENT VALUE.

No use tries the lasting qualities of lumber greater than that of Bee Hive construction. It is the very deuce to get lumber that will not too readily rot—unless one gets Cypress lumber. Then there is a good show for endurance that means **real money saved on repairs you don't have to make.** Try it, Mr. Beekeeper.

## STUDY THE WOOD QUESTION

There's one way to get at this matter of endurance—through books of authority. Such are the 41 volumes of the internationally famous Cypress Pocket Library. These books are not "advertising"—they are authoritative references on file in the libraries of scores of technical schools and National institutes. Ask for Vol. 1 to start with; it contains the complete U. S. Govt. Rept. on Cypress, "The Wood Eternal," and a full list of the other volumes; then branch out until you cover the subject.

---

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA. ═══ 1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

# AMERICAN BEE JOURNAL

MAY 3 - 1918
[illegible]
College

MAY, 1918

**Have you received our new catalogue?**

**We offer you even better service than ever before at our new location**

**COME IN AND SEE US**

**Write for our 1918 Bee Catalogue now**

# Big Money? — Yes — Read How

If your banker said to you, "Mr. Brown, buy that piece of land next to you at $100 per acre; it will be worth $2,000 per acre this coming summer," would you buy it today, or wait—well, until later on? We are sure you would not delay one moment.

We offer you the same kind of buy—that is, make $20 on each $1 invested. Buy your sections and bee-supplies *now*, for the sections cost less than $1 per hundred, and next summer, when they are filled with honey, they will be worth $20—think of it, those same sections that you bought for $1. The same holds good on other supplies. ORDER NOW and tell your neighbors the same, or Mr. Railroad Embargo "will buy that piece of land next to you and you'll be left."

## OLD COMB

Ship your old comb and cappings to us for rendering. We charge you 5c per lb. for the wax rendered and pay you the highest market price.

## WAX AND HONEY

We always buy Comb and Extracted Honey, as well as Beeswax, so when you have the above to offer, write us and you will be well pleased.

## Four Reasons for Our Success

**Honesty**

**Quality**

## LEWIS'S BEEWARE

If you have used LEWIS'S BEEWARE you know the quality; if not, this is just the time to invest your money where the results are lasting.

*"Made Like Furniture."*

**Price**

**Service**

**DADANT'S famous Foundation**

**THE FRED W. MUTH CO.**
Pearl and Walnut Streets
CINCINNATI, OHIO

"QUALITY COUNTS WITH US"

**ROOT'S Smokers and Extractors**

**QUEENS**

**Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 Years a Queen-breeder.**

| Before July 1.— | 1 | 6 | 12 |
|---|---|---|---|
| Select untested | $ 1.50 | $ 8.00 | $15.00 |
| Tested | 2.00 | 10.00 | 18.00 |
| Select tested | 2.50 | 14.00 | 25.00 |
| 2-Comb Nuclei | 4.00 | 22.00 | 42.00 |
| 3-Comb Nuclei | 6.00 | 33.00 | 60 00 |
| 8-frame Colony | 10.00 | 55.00 | |
| 10-frame Colony | 12.00 | 68.00 | |
| 1-lb. package bees | 3.00 | 16.00 | |
| 2-lb. package bees | 5.00 | 28.00 | |
| After July 1.— | | | |
| Select untested | $ 1.00 | $ 5.50 | $10.00 |
| Tested | 1.50 | 8.00 | 14.00 |
| Select tested | 2.00 | 10.00 | 18.00 |
| 2-Comb Nuclei | 3.50 | 18.00 | 35.00 |
| 3-Comb Nuclei | 4.50 | 25.00 | 45.00 |
| 8-frame Colony | 8.00 | 45.00 | |
| 10-frame Colony | 10.00 | 55.00 | |
| 1-lb. package bees | 2.50 | 14.00 | |
| 2-lb. packages bees | 4.50 | 25.00 | |

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, $5 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above prices on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference: Any large supply dealer or any bank having Dun's reference book.

**H. G. Quirin, Bellevue, Ohio.**

PATENTED

**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2.50, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calif.**

**MOTT'S NORTHERN-BRED ITALIAN QUEENS**

that resist disease well. Those that resist disease must be hardy, prolific, and hustlers; they are gentle. Bees per pound. Plans on "How to Introduce Queens and Increase," 25 cents. List free. Untested $1 each.

**E. E. MOTT, Glenwood, Mich.**

**BEE SUPPLIES**

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

**Bee Hives and Supplies of All Kinds**

Discount for early orders. Book on how to handle bees, 27c by mail Instructive catalog free.

**J. W. ROUSE, Mexico, Mo.**

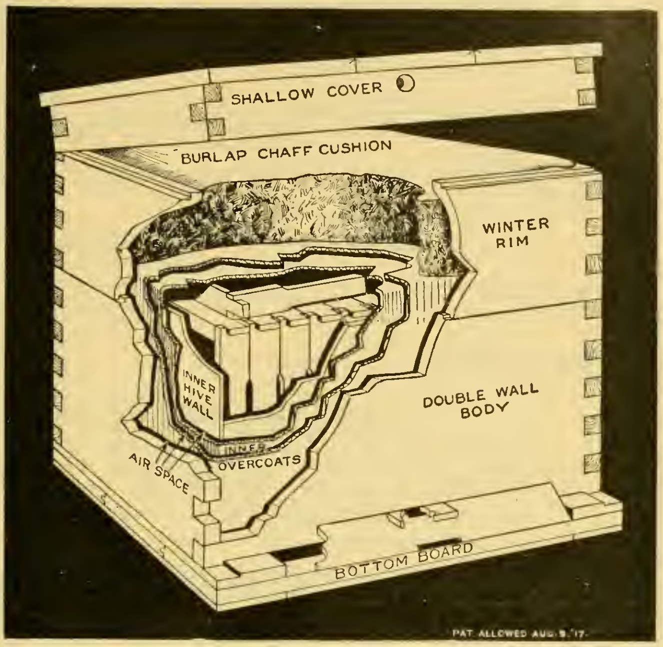
**WINTER PROBLEM SOLVED**

BY

**Woodman's Improved Protection Hive**

**"THE HIVE WITH AN INNER OVERCOAT"**

**100% Perfect Protection by Tests, Winters of 1916-17-18**



**The Inner Overcoat Did It**

Without any special preparation we have wintered bees in these hives without loss. It is a joy to see the condition they are in, when compared with other styles of hives and wintering methods. The INNER OVERCOAT is telescoped down over the brood nest, in between the outer and inner hive walls, when preparing them for winter. In the spring it is removed and stored away in the K. D. flat. Not more than two minutes are required to pack or unpack a hive by this method. The INNER OVERCOAT affords more protection than several inches of ordinary packing material. Send for a special circular showing 10 large illustrations.

**Tin Honey Packages**

SIXTY-POUND CANS, in cases or in bulk, are being sold by us at prices considerably below general market prices. Send us an estimate of your requirements and let us quote prices.

FRICTION TOP PAILS, any size furnished, and in quantities as you may desire. Send us a list of your requirements and let us quote prices, as we can save you money. The tin can factories are rushed with orders, the tin plate situation is serious and transportation slow, so it will be wise to place your orders early.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

## "falcon"

### THINGS THAT ARE NECESSARY FOR YOUR APIARY

1. There must be a good location for the apiary.
2. Queens must be healthy and vigorous to put life into the hives. (Our queens are the best to be had and at reasonable prices.)
3. Your bees cannot do the work they should if you do not give them the best with which to work. If they have ample storage space, if they can work all the time without slack motion, they will be more contented and swarmless. To accomplish this, you must give them ample storage space, that is, the **RIGHT HIVES AND SUPPLIES. "falcon"**

Beekeepers should be placing their orders early for their early needs. He who waits is apt to suffer. These late beekeepers who want their goods in such a hurry at the last minute will lose some of the honey crop by not furnishing their bees with ample storing space. Railroad embargoes and rush business make deliveries slow.

Our famous **"falcon"** supplies will please you. Do not wait. Order now and strike while the iron is hot. **"falcon"** means the best, the standard of perfection. Red Catalog and Simplified Beekeeping upon request. Dealers everywhere.

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Good Beehives Come From**

## Bee Supplies Bee Supplies

### READ—ORDER EARLY

Owing to the congestion of freight and embargoes, we caution all beekeepers to get their order in early, otherwise you will suffer a great loss when you actually need goods, and you perhaps will be unable to get them for the above reasons. We have a large stock on hand, and can fill orders promptly, provided the railroads will accept freight.

*Send for our new catalog.*

**C. H. W. Weber & Company**

**2146 Central Ave. Cincinnati, Ohio**

## TENNESSEE-BRED QUEENS

**46 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Aug. 1* | | | *Aug. 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested .......... | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $13.50 | $1.00 | $ 5.00 | $ 9.00 | $ .80 | $ 4.50 | $ 8.50 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 | 1.10 | 6.00 | 10.50 |
| Tested ................ | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 | 1.50 | 8.00 | 15.00 |
| Select Tested .... | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 | 2.00 | 11.00 | 18.00 |

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

## We Offer

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**
**Glen Cove .. New York**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

### A BOOK FOR BEGINNERS

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# The Proof *of the* Pudding

**Riverside Farm and Bee Apiary**
G. A. BARBISCH, PROP.
HIGHEST GRADE EXTRACTED HONEY
R. 1 LaCrescent, Minn. 191__

Dadant & Sons,
Hamilton, Illinois.

Gentlemen:

Have shipped you today, by freight prepaid, 82 pounds of No. 1 Quality Yellow Beeswax. Enclosed find bill of lading. Please work same into medium brood foundation, pack in 3 or 5 lb. paper cartons and ship by freight to Mound Prairie, my nearest freight office. Let me know at once how much the charges are and I will send check by return mail.

Wish to tell you that Dadant's Foundation is far ahead of any other kind I ever tried; no trouble to get bees to accept it and make into beautiful combs. You surely hit the nail on the head when you say it excels. Hereafter, as long as I can get Dadant's Foundation, I shall use no other kind.

G. A. BARBISCH,
Mound Prairie, Houston Co., Minn.
Feb. 20/18.

*When ordering of your dealer, insist on Dadant's Foundation. If he hasn't it, order from us.*

**DADANT & SONS**
*HAMILTON, ILLINOIS*

BEWARE
WHERE YOU BUY YOUR
BEEWARE
LEWIS WATERTOWN WIS U S A
MAKES THE FINEST

# Make This a Lewis Year

While you are starting the year's work, getting your bees ready for business, taking stock of supplies on hand and speculating as to what the season's outcome will be,

## Make This Resolution

That you will use LEWIS BEEWARE this year—because it means success insurance to you—because it means beehives and parts made of the best material by skilful workmen—because it means goods accurately and systematically packed—because it means sections made of bright lumber, highly polished, accurately dovetailed and scientifically grooved.

## Help Your Bees Sting the Kaiser

Order your supplies early, and order standard goods in order to save time and enable us, as manufacturers, to accomplish the most in the shortest possible time. Now, of all times, the Beekeeper should not put off until tomorrow what he can do today. You owe it to your country and to yourself to prepare at once for the gathering of the 1918 crop.

**LEWIS HIVES**
**ARE BUILT LIKE FURNITURE**

**LEWIS SECTIONS**
**THE KIND THAT DO NOT BREAK IN FOLDING**

You will find LEWIS BEEWARE almost at your own door—thirty distributing houses in the United States and foreign countries. If you have not one of our catalogs, send for copy at once.

## G. B. LEWIS COMPANY

*Exclusive Manufacturers of Lewis Beeware*

WATERTOWN, WISCONSIN, U. S. A.

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 5 HAMILTON, ILL., MAY, 1918 MONTHLY, $1.00 A YEAR

# THE EVOLUTION OF THE BEEHIVE

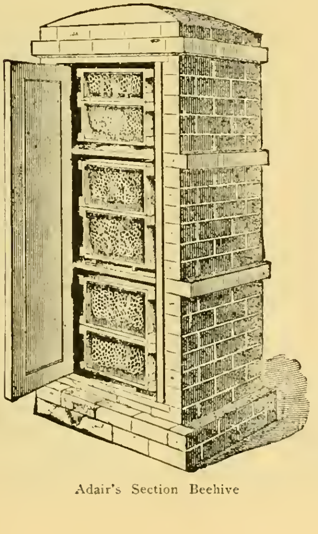
## The Second of a Series of Articles by the Editor Showing the Development of Hive Construction Since the Earlier Days

IN 1750 a man was born who had great influence upon beekeeping, F. Huber, a Swiss, of Geneva. In his early youth he lost his eyesight; his biographer, De Candolle, attributes this to his too great eagerness to read. He spent days and nights in reading and when his parents deprived him of artificial light at night to compel him to take a rest, he even tried to read by the light of the moon. At 17 he was almost completely blind. He was then engaged to Aimee Marie Lullin, who heroically remained true to him and finally married him seven years after. Through her eyes and those of a faithful servant, F. Burnens, who was also a great observer, he made studies of natural history which finally concentrated upon the inhabitants of the hive. The works of Reaumur and Bonnet drew him to this. He confirmed the discovery of Schirach that the bees can transform any worker egg into a queen by special treatment. He showed that worker bees who were supposed to be neuters could, in most instances, lay eggs that would hatch. He described the combats of queens with each other. He discovered that the queen was fecundated in flight. He studied the causes of swarming, the use of the antennæ, the production of wax, the building of combs, etc.

For these studies he devised what he called "the leaf hive," which opens like the leaves of a book, and on each of which leaves a comb is suspended. He also devised what we now call observing hives, hives with only one comb and glass on both sides, which he called "ruches plates" (flat hives), because of their shape. It was with hives of both these styles that he made the numerous remarks which he recorded in his "Letters to Chas. Bonnet," published in 1792 and republished in 1796 and in 1814 under the title of "Nouvelles Observations sur les Abeilles" (New Observations upon bees). He also published a memoir of the origin of beeswax, in 1804.

The latter memoir was incorporated in the Nouvelles Observations, in the last edition, composed of two volumes.

Huber's leaf hive had a popularity which lasted a number of years. The greatest obstacle to its use is the difficulty of bringing together the combs of a populous hive after having taken them apart, for they touch one another in their entire length and depth, except in the spaces left for openings for the passage of the bees. It is difficult to open and close a hive of this kind without crushing many bees, especially in the busy season. The elder Dadant tried them, and it was after accidentally crushing a queen while closing the hive that he discarded them, for the hanging-frame hive.



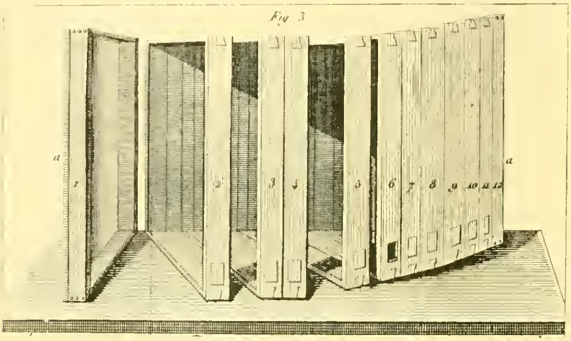
Adair's Section Beehive

D. L. Adair, of Hawesville, Ky., patented a hive similar to that of Huber, in 1867, and gave it publicity in both the early years of the American Bee Journal and in his "Annals of Bee Culture" which appeared from 1869 to 1872.

A little later, Moses Quinby abandoned his hanging-frame hive for a hive with "standing frames" somewhat similar to those of the Huber leaf hive. But his frames were held in position by a clamp which was slipped into a groove on the hive bottom. His frames also differed from those of Huber in having full bee spaces at both top and bottom, so that they touched one another only at the perpendicular ends which were made of lumber 1½ inches wide. So the difficulty of manipulation was lessened, since the points of contact were less numerous. The advantage claimed for these hives was that they made a closed body, which was surrounded with another hive body and bees were said to winter in them better than in hives with loose hanging frames, in which the air can circulate around the frames, at the top, bottom and ends.

The Huber leaf method was also followed by Adair in his honey sections, with the only difference that he made the top and bottom bars to overlap on the end bars. The Adair section was soon improved upon and gave birth to our folding honey section. So the Huber hive principle is still in use in our supers with comb-honey production, the difference being that the sections are enclosed in a case, while the Huber leaf hive was formed of the frames brought together, with a dummy at each end.

In the American Bee Journal of July, 1912, we gave on the cover page a view of the apiary of A. B. Anthony, of Sterling, Illinois. The hive invented by Mr. Anthony opens like a book, more literally than the Huber hive. It is a model of ingenuity, for it is arranged to open in such a way that not a single bee can be crushed, the frames not touching each other. But the exactness of the requirements in such a hive has discouraged most people from its use. For popular use, hives must be simple enough to be put into the hands of entirely unskilled workers.



The Huber Leaf Hive

The observing hives (ruches plates) of Huber were undoubtedly the ones which permitted him to make the numerous discoveries which he brought to light. The writer has often followed Huber's teachings with one of these hives. A single-comb observing hive, located within a house, by a window, or outside on a remote corner of the house porch or veranda and filled with a comb loaded with bees, is a source of endless study. There is no need of a queen, provided the comb contains brood less than three days old. You can watch the rearing of a queen, the destruction of the supernumerary queen-cells by the first queen hatched, often helped in this work by the neuters. You may even have occasion to notice the combat of queens. There is no end to the amount of experience that may be derived from the use of these "flat hives" with glass on both sides. Even combs built crooked and fastened to the glass will give you amusement and information, by enabling you to see how the bees work in the cells, to deposit honey or pollen or to rear brood.

The life of F. Huber, published in the "Bibliotheque Universelle" of February, 1832, and re-published in 1894 by Ed. Bertrand in the "Revue Internationale D'Apiculture" is interesting reading and we may translate it for our readers some day.

---

# Apiary Buildings and Their Equipment

By Morley Pettit

(Concluded from April)

I HAVE turned over in my mind many ideas for the efficient routing of supers from the hives to the extractor; but the completion of the building in addition to apiary work was all that spare time in 1917 would allow without permanently installing any machinery. So I think I will postpone the publication of definite plans further than to say that the garage has a door in the end facing the apiary as well as in the front. The hives in the apiary can be arranged so that a motor truck can be backed down the rows and loaded with supers for extracting, as a welcome substitute for the old wheelbarrow.

All supers are removed from the hives with bee-escapes, so the loading on the truck will be easy and rapid. Loads of supers from outyards, of course, go immediately into the garage at the front door to be unloaded directly to the extracting room. Here the supers can be moved either in piles on small trucks with castor wheels, as milady moves her dinner-wagon, or hung from trolleys on overhead tracks, as carcases are moved in an abattoir. It might be practical to run the overhead track out into the apiary and along over the rows of hives. A super-lifter for brood-chamber examinations might possibly be combined with this; but so many have been dreaming of super-lifters that I will shut up for the present.

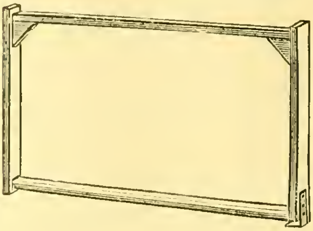
In any case, routing and machinery must be arranged to avoid backtracking as much as possible. With this end in view the door from the extracting room to the apiary is at the opposite end from the garage. A super-hoist may also be placed at this end. Supers will then come in from the garage, pass through the extractor and rest near the far door, to be taken to the apiary at night, or upstairs for storage, as the case may be. Outapiary supers will, in the spring, be handed down the trap door to the motor truck in the garage.

## Extracting Machinery

With good steam pressure and a long-handled knife and well-built combs, one man can uncap for an 8-frame extractor, and a helper has too easy a time tending it. Where extractors are allowed to do their work thoroughly I believe there should be 16-frame or 18-frame capacity, with one to attend them and two, or at most three, uncappers. I am referring to Langstroth combs. This would call for good large capping melter capacity, a battery of four 4-frame or three 6-frame extractors, a pump and plenty of storage. I would heat the knives and melters with steam brought through well insulated pipes from a boiler in another room. That would remove the most objectionable feature of this part of the extracting, the over-heating and vitiating of the air caused by oil stoves burning in the room, and even steam from knives and melters might be taken care of to advantage by some system of condensation.

I do not know what the daily capacity of such an outfit would be, but would guess at from 7,000 to 10,000 pounds as a conservative estimate. I know that under rather unfavorable conditions, with one 8-frame machine, I uncapped and the helper extracted 3,500 pounds in one day last fall, and he had an easy time. If you say why such haste, I will refer you to the shortness of the time between light and dark honey flows in many sections, the importance of leaving honey on as long as possible for ripening, and the high cost of living.

The knife is a sandwich-knife with straight blade about 10⅛ in. long. A tinsmith added the copper jacket for steam. The handle is straight with the blade, eliminating the tiresome side-pull of the stock knife, and I wound it with tire tape for a better grip. The next improvement will be some sort of support for the other end to give leverage and save the operator's wrist. A modified bread-cutting machine might answer.



The Standing Frame of Quinby

## A Revision of Extractor Construction

While we are installing extractors the stock machine of the manufacturer will stand some scrutiny.

The idea of an extractor or battery of extractors built in, as it were, or permanently installed, has not to my knowledge been published before. If it has I would be obliged to any reader for the reference. All extractors are built for moving about without "taking down" in any way, and have had to suffer in some points on that account. To make them for permanent installation admits of a complete review of extractor construction with a view to revision.

What are the essential parts of an extractor? Among them are baskets for the combs, a reel to whirl them, supports for the reel, a screen to intercept the flying honey and a reservoir to retain it until drained away. For convenience, hand extractors were built in a tin can which combined reel-support, honey-screen and reservoir. Power extractors are built the same way. To overcome vibration caused by uneven loads, the beekeeper nails this can down and wires it down and sometimes braces it from the ceiling, and it continues to be a flimsy tin can which is no proper support for a real machine. The honey collects in the bottom and cannot be fully drained out without tearing the whole machine from its moorings. One would not expect to find a power machine in any other industry so little removed from its hand prototype.

The comb-basket reel might well have its upper and lower bearings fixed in a steel frame on a concrete base, rigid enough to resist all vibration after ordinary care is taken to balance uneven combs. The honey screen and reservoir is an entirely separate matter, and does not need to be a complete can at all; so long as it catches flying honey and conducts it along channels which will drain automatically and completely into the pump chamber. The latter might be built like a wax-honey separator to keep floating wax and honey from the pump.

The Leaf Principle is used in these
Specially constructed Hives of an American Beekeeper, made to be turned over for examination.

I would use a battery of small reels in preference to a large one. They have greater centrifugal force, start and stop easier, and while one is stopped, fewer baskets are idle. The force of vibration from an uneven load in a small reel is less. A number of small reels could be placed in one set with only single partitions between them.

### The Honey Pump

I am thankful our building is on level ground so we can pump honey from the extractor to storage with a clear conscience. So many recommend gravity systems, but they all involve stair climbing or lifting combs or supers, which is work for the beekeeper. The pump lets the motor do it, and that is always cheaper. The only effect of the pump is to hasten granulation or if run when not full to cause foam by churning. The latter is easily prevented and the former is an advantage when selling granulated, and does no harm when the honey is to be heated for bottling.

### The Honey Room

Ranged around the wall in the honey room are the store tanks to which the honey is pumped through galvanized iron piping with rubber hose on the end for distribution from tank to tank. The capacity of these tanks suits the day's work so that night will not find one only part full. We have enough for at least three days extracting, as that is a minimum time for honey to "steele" before skimming and filling. They are on stands about three feet high, so that filling can be done on a table in a comfortable position. Pails as filled are crated uniformly and stacked in the shipping end of the honey room next the garage, where they are convenient to load into the truck for shipment.

Besides having plenty of light and capacity for two cars, the garage has a floor drain and running water for washing and will be equipped with small work bench and proper tools for all except the most difficult adjustments and repairs.

### Things Every Central Apiary Building Should Have

There are many points on which beekeepers will differ in the matter of apiary buildings and equipment; but certain things everyone should have are:

1. Cheerful rooms with high ceilings, large windows close together, and plenty of electric lights where the latter are available.
2. A power plant, gasoline or electric, connected by convenient lineshaft to extractors, honey pump, saw, emery wheel and whatever other power machines may be used.
3. Steam for uncapping, wax rendering, liquefying, feed making, cleaning, and perhaps for heating the building to make inside work independent of weather conditions. Question: How about a steam engine for

power in view of gasoline shortage and above-mentioned uses for the exhaust?

4. Running water and floors that can be washed down with hose. If necessary, a private water pressure system is a good investment in view of using it in dwelling as well.

5. That the building should be bee-tight goes without saying, and if you build twice as large as you think you will need it may be large enough.

Honey production has become an established business comparable in permanency and profits with any other branch of agriculture. Perhaps no other branch requires so small an outlay of capital for the same return. The best of practical equipment is not expensive, and the best is none too good.

AMERICAN
BEE JOURNAL

PUBLISHED MONTHLY AT
**First Nat'l Bank Bldg., Hamilton, Ill.**

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

## IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS. We do not send a receipt for money sent us to pay subscription, but change the date on your address, which shows that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

### Laying of Queens—Nurse Bees

Comments by C. C. Miller

In April American Bee Journal, page 130, M. F. Perry says he differs with me as to the number of bees required for a certain thing, I having inclined to the opinion that a pound might answer, and Mr. Perry suggesting 2 or 3 pounds. To be sure, the types make him say "less than 2 pounds, or, better, 3 pounds," but I'm pretty sure the printer or someone else dropped out a "Not," and that "not less than 2 pounds" was meant.

There is a pretty wide difference of opinion when one asks 2 or 3 times as many bees as the other, and it may not be out of place to inquire whether we are both talking about the same thing. To go back to the beginning, on page 28, January number, I was asked, "Assuming that I give a pound of newly-hatched bees and a strong, vigorous queen to a queenless colony with a large force of field bees, would the pound of nurse-bees be enough to nurse all the brood she could produce, say until the first of it be sealed?"

I replied: "I don't know enough to answer definitely. I'm inclined, however, to the opinion that all the brood an average queen could produce up to the time of the sealing of the first of it would be properly fed if a pound of newly-hatched bees were added. At that it might be hard to prove that some of the fielders did not turn in and help on the feeding."

Mr. Perry says: "A pound of bees, supposed to contain 5000 bees, say one-fourth remain in the hive as nurse-bees, that would allow a good queen to do only one-fourth of her duty." According to that it would take four times as many bees, or four pounds, to allow her to do her full duty. that would make us still farther apart.

But how do you know, Friend Perry, that "one-fourth remain in the hive as nurse-bees?" Isn't the number that remain a very varying quantity? In the early spring I suspect that less than half the bees go afield. I don't know what proportion stays in the hive on a hot day in a big flow; I wish I did. But have you any proof that it is as large as one-fourth?

You say, "A queen worth keeping will fill a comb with eggs in a day." If she keeps that up she will keep 21 combs filled. I've had some excellent queens, but I don't know that I've ever had one that kept 21 combs filled. Have you?

You say, "It will be 21 days before more nurses can emerge," and are evidently talking about feeding for 21 days. I don't know that it makes very much difference, but I wasn't talking about 21 days' feeding, only 8 days, for if you will look again you will see that the question specified "until the first of it be sealed."

You say, "Some bees are lost every day," evidently talking about bees of all ages, but please note that both in the question and the answer "newly-hatched bees" are specified. A newly-hatched bee is supposed to have before it about six weeks of life, so that none of the pound should die within 8 days, or even in 21.

Your conclusion is that not less than 2 or 3 pounds "is sufficient to build up a colony readily in the cool weather of spring." But the question was not how many bees will build up a colony, but how many can feed the product of the queen in 8 days. And I don't see that the cool weather has anything to do with it, for although the weather makes a difference about the number of bees that fly out, cannot a nurse-bee feed just as many babies in a cool day as in a hot one?

If I understand you correctly, you think not less than 2 or 3 pounds of nurse-bees should be added to "a queenless colony with a large force of field bees," in order "to build up a colony readily in the cool weather of spring." Even upon that point I'm afraid we would hardly agree. "A large force of field bees" is rather indefinite, but I would hardly think of it as being less than 25,000. Now, would you think me unreasonable if I should say that there was no need to add a single bee to a field force of 25,000 in order to build up readily in the cool weather of spring. At any rate, that's just what I do believe. Please remember that when a colony comes out of winter quarters there are no young bees, yet the colony builds up all right. You may say that many of the bees are practically young, having merely existed through many weeks without doing any work. Well, then, I'll give you a case where all the bees were field bees, in the fullest sense of the word. One year, a good many years ago, I moved a colony to a new location and set on its stand an empty hive to which the field bees returned, and to these I gave a queen. I cannot give details as to the building up, but I know that that colony, starting with nothing but field bees, gave one of the largest yields of surplus of the whole apiary.

To answer the questions before us we need to know: 1. How many eggs a queen lays daily. 2. How many larvæ each nurse can keep fed. I'd like to know.

### Death of R. C. Aikin

Mr. R. C. Aikin, a former beekeeper of Colorado, and a writer of some note on apiculture, was taken ill at his home in Blessing, Texas, on March 11, and was removed to the hospital at Houston, Texas, on the 17th, hoping that he would improve; however, double pneumonia developed and on March 21, 1918 he quietly passed away.

No doubt, our readers will remember the many writings of Mr. R. C. Aikin in the Bee Journals when he was actively engaged in beekeeping in Colorado, several years ago. At that time he was considered an authority on apiculture and his writings on this subject were read with great interest by all. He and his wife have for the past few years resided in Blessing, Texas, and his death has closed the book for one of the best men it has ever been our privilege to know. We extend our deepest sympathy to the sorrowing wife and other relatives.

THE LATE R. C. AIKIN

### Death of J. L. Strong

One of the best known apiarists of Iowa, J. L. Strong, died March 7, after three years of suffering.

Mr. Strong was not only a capable apiarist and a noted queen-grower, but he was a man of great power of observation and method. If our readers will refer to the editorial in the third column of page 118 of the April number, they will see that Professor Kenoyer used the records made by Mr. Strong, during a space of 29 years, of weights of a hive and meteorological data. This little item shows the worth of the man. He was 72 years old.

His wife, family and friends have the sympathy of the beekeeping public.

### Free Advertising of Honey

Honey never had such free advertising as it is getting nowadays. The March number of "Physical Culture" contains a long article extolling honey for food. It is no more than honey deserves. But there was a time when it might have been difficult to get free encomiums of this kinds. As the French say: "A quelque chose malheur est bon," which may be freely translated to "It's an ill wind that blows nobody good." If it were not for the world struggle, which makes food scarce, the public would not be so carefully informed of what may be gained by large honey production and consumption.

### Illinois Foulbrood

The 1918 official statement on foulbrood does not contain any report. It contains only instructions on how to treat foulbrood and gives a copy of the law. It is published under the direction of the Illinois Department of Apiculture. It may be had of Charles Adkins, Director, Springfield, or of A. L. Kildow, Inspector, Putnam. Beekeepers who are in doubt about foulbrood should procure this and all other available information.

### Death of an Editor

We have received by private advices the news of the death of Mr. F. D'Autemarche, managing editor of "L'Apiculteur," the oldest bee magazine in existence. Mr. Sevalle, editor-in-chief, who has for years stood in the background, is again assuming the management.

The public announcement of the death of D'Autemarche has probably appeared in the November-December, for it is mentioned only incidentally in the January-February number.

### Against the Bee Killer

"Contro l'apicidio" is the title of a booklet of 34 pages published in Italy by the Italian Federation of Beekeepers. The author is Emo Perucci and the book is a straight aggression against the people who still kill the bees to get the honey. It contains a very thorough description of the different methods of transferring bees from box-hives to movable frames and shows the advantages of modern methods.

A similar work would still do some good in the backward counties of many of our most progressive States.

### Beekeeping Applied to the Liberty Loan

The Chicago Sunday Tribune of April 14 contained a cartoon showing the dollars of the third Liberty Loan under the shape of the bees of a swarm, making honey in 4¼ sections at the rate of 4¼% and stinging the Kaiser.

### Weak Colonies in Spring

Now is the time to watch your weak colonies. If you are in a locality where foulbrood is prevalent, such colonies as might have had the disease last fall and were strong enough to withstand the winter, will be in danger of being robbed out this spring, thus spreading the disease to your stronger colonies. Then, too, just before the spring honey-flow commences is the easiest time to discover the disease if it has developed. Work at your colonies when a very light flow has commenced, thus doing away with the dangers of robbing.

Weak colonies which have good queens may be saved if their entrance is narrowed down so as to be easily protected by the bees from ever-alert robbers. Some aid these colonies by the addition of a frame or two of brood from other colonies. But this, if done, should be done only when the weather is sufficiently warm so that the colony can easily keep such extra brood warm, and all brood given, or nearly all, should be sealed.

Queenless colonies, if weak, had best be united with other weak queenright colonies rather than try to save them by buying a queen and running the risk of her being killed by the old bees. If the colony is queenless and yet strong, it may be advisable to introduce a queen fresh from another hive.

### Variation of Time of Fruit Bloom in North and South

A letter from Dr. Miller a few days ago suggested that it might be interesting to note the period of the blooming of different fruit trees this year at Marengo and at Hamilton to see what a hundred miles variation in longitude means.

We will have more to say about this later.

# Fabre on Parthenogenesis

By the Editor.

THOSE of our readers who have been with us for several years will remember, perhaps, the writings of the celebrated naturalist, Fabre, and his great observations upon the bee-eating wasps, the philantus apivorus, and his description of the digger-wasps, such as the sphex, the scolia, the pompilus; the scientific way in which these insects sting their prey sufficiently to render it unable to defend itself and yet live until it is eaten by the young larva of the digger-wasp. (American Bee Journal, September and November, 1912.

Fabre's writings are exceedingly interesting, for although he was a botanist and an entomologist, his descriptions are as devoid of scientific words as he could make them. Besides, he spent but little time describing the anatomy of the insects. Of this he gives just enough to explain their actions. He was really a naturalist, studying the habits and ways of all these insects and describing what he saw in a delightful manner. The reader of his books accompanies him in his researches, so vivid are his descriptions. His entire life was spent watching the small but innumerable world of insects.

I bought his "Souvenirs Entomologiques" in his native language, the French, and am spending many delightful hours with him among the hymenopters. But although he spent years among the different varieties of bees, the honeybee seems to have been neglected by him, for he mentions only its enemies, the digger-wasps. It was, therefore, with great astonishment that I found, in the last chapter of the 3d volume, a reference to Dzierzon and parthenogenesis. It came in the following way:

In describing the "osmia," a family of mason bees, he explains the repartition of the sexes in the different cells. In this bee, the male is smaller than the female, just the opposite of our honeybee, if we consider the worker or neuters. But as the female osmia are all fully developed females, the comparison between them and their males is not in very great contrast with that of our queens and drones. The females are hatched in cells measuring about one-third more than those in which the males hatch. Fabre wonders, as we do, at what causes the sex of the egg and concludes that it is entirely left to the decision of the mother. But as to what determines her decision he remains ignorant. He writes:

"There remains to be told in what manner is made this facultative determination of the sexes. I know absolutely nothing about it. If I ever learn anything upon this delicate question, it will be due to some happy circumstance for which I must wait. Towards the end of my researches, I became acquainted with a German theory concerning the domestic honeybee and due to the apiarist, Dzierzon. If I understood it well, according to the incomplete documents before my eyes, the egg, such as it is, supplied by the ovary, already has a sex; always the same; it would be originally male; it is by fecundation that it would become female. The males would be the result of non-fertilized eggs; and the females of fertilized eggs. The queenbee, therefore, would lay female or male eggs according to whether she did or did not fertilize them, as they passed through the oviduct.

"Coming from Germany, this theory inspires me with profound distrust. As it has been admitted, with rash precipitation, even in classic books, I will surmount my repugnance to investigate Teutonic ideas and will submit it, not to the proof of arguments, against which a contrary argumentation may always arise, but to the irreversible test of facts."

HENRI FABRE

Fabre then goes on to explain that, according to the Dzierzon theory, the egg passes by the spermatheca which contains the seminal fluid and may or may not have its sex changed by the action or inaction of this fluid, becoming a female or a male, the sex being thus determined, at the will of the layer, by a pressure upon the spermatheca. Now comes the experience upon which he bases his denial of parthenogenesis:

"The Osmia, born industrious, dies working. When her ovaries are drained, she spends the remainder of her strength in useless labor, partitions, lids, hoards of pollen without use. The living machine cannot accept inaction, even when there is nothing to do. It continues its functions in labor without purpose. Let me point these vagaries to the adepts of the reasoning power of beasts.

"Before reaching these useless labors, my belated workers have laid their last eggs, the location and date of which I know positively. These eggs do not differ in any particulars from their elders. They have the same dimension, form, gloss and appearance of freshness. Their supplies have nothing exceptional, either, and are very well suited to males, closing the laying. And yet, these last eggs do not hatch, they shrink, wilt and dry up on the stores of food. At the terminal egg-laying of some osmia I count 3 or 4 sterile eggs; with another, 2 or 1. Another gives fertile eggs to the last.

"These sterile eggs, touched with death from their first appearance, are too numerous to be unnoticed. Why do they not hatch like the others which they so resemble? They have received from the mother the same care, the same victuals. The investigations of the magnifying glass show nothing that can explain the fatal isue.

"If our mind is free from preconceived ideas, we go straight to the explanation. Those eggs do not hatch because they have not been fertilized. Thus would perish every animal or vegetable germ that did not receive the vivifying impregnation. Any other explanation is impossible. Do not speak of the lateness of the laying; eggs of the same date from other mothers, are perfectly fertile. Once again, they do not hatch because they have not been fertilized.

"And why have they not been fertilized? Because the seminal bag, so small that it has often escaped my observation, in spite of my vigilance, had exhausted its contents. The mothers whose spermatheca preserved till the end a remnant of the fecundating element had their last eggs as fertile as the first; others with a seminal receptacle too quickly exhausted had their last laying smitten by death. This seems to me clear as daylight.

"If the unfecundated eggs perish without hatching, those that hatch and produce drones are therefore fecundated; and the German theory crumbles.

"What explanation will I then give to account for the marvelous facts which I have exposed? None, absolutely none. I do not explain, I relate. From day to day, more skeptical towards explanations which may be advanced to me, more hesitating towards those that I might advance myself, I see more and more before me rising, in the black cloud of possibilities, an enormous interrogation point."

So the reason for Fabre's positive denial of the Dzierzon theory of parthenogenesis lies in the non-hatching of the last laid eggs of some of his osmia. This looks convincing. Dr. Phillips has himself written that he "found that many eggs laid by drone-laying queens fail to hatch and, in fact, are often removed by the workers." But other facts rise before my mind which seem to indicate a conclusion quite different from that given by Fabre.

On page 13 of the American Bee Journal for January, 1916, I have given an experience of my young days which impressed itself vividly, because I then knew but little concerning parthenogenesis. Let me repeat the statement, in part:

> In my queen-rearing experience, it happened to us once, I believe it was in 1872 or 1873, that we found sale for seven first-class Italian queens, very late in October. The amount offered for those queens, by a lover of good stock, was so enticing that we decided, my father and myself, to sell the queens, which were in very populous colonies, and take the risks of being able to replace them the same season. Queens were not then to be bought as readily as they are now. There were still many drones, as the season had been very prosperous and late. But those queens, hatched early in November, had no opportunity to mate, for the weather turned cold suddenly and the time of their rut passed without any oportunity for flight, even though drones might have been present. The following spring we found ourselves with seven pretty and very prolific drone-layers. Their eggs were laid as regularly as those of fertilized queens, and their progeny hatched in the most uniform way, small drones from worker-cells and large, full-sized drones from drone-cells. I do not remember that any of their eggs failed to hatch. True, some of them might have been removed by the bees, unknown to us, but this does not seem likely. The little drones appeared as able-bodied as the large ones, and, according to the Dzierzon tests, must have been proportionally as good as the large ones. It goes without saying that we promptly replaced the queens with other breeding stock, and never did we have better early matings than that year, since thousands of drones were produced at a time when there are usually very few.

Being then between 21 and 22 years of age, I became very thoroughly impressed with this evidence of the correctness of the Dzierzon theory, which had, up to that date, appeared to me only as a possibility. I have, ever since, called it an established fact. But it is very easy to see why an observer like Fabre, who had no opportunities to make a test of this kind, should denounce the theory as entirely false. And yet it is very likely that the eggs mentioned by him as not hatching were rendered unproductive by some other cause than want of fertilization. In my experience I have seen two or three queens whose eggs did not hatch, but never had an opportunity of ascertaining the cause.

However great the genius of Fabre and his powers of observation, he was, nevertheless, subject to prejudice. Witness his antipathy to Teutonic teachings. Such an antipathy was natural in a Frenchman, writing after the crushing war of 1870, but it should not have led to anticipated prejudice. Besides, Dzierzon, born in Karlsmarkt, eastern Silesia, may have been of Slav descent, a Pole. So even the prejudice against him might have been ill-placed.

In his writings, Fabre constantly criticized Darwin and his theory of evolution, of constant change, slow and steady, due to the struggle for life and the survival of the fittest. Nothing that Fabre saw served to convince him of anything but the immutability of the habits and conditions of the minute beings which he watched so carefully and upon which he wrote so interestingly. It would have been worth while, if he and Darwin could have been placed face to face for a few hours and urged to discuss their views. They were both accurate naturalists and both after the truth. They were 14 years apart. Darwin was born in 1809 and Fabre in 1823. Neither took things for granted, but while Darwin tried to explain some of the phenomena which he saw, Fabre left, at the end of his studies and his wonderful descriptions, what he himself calls "an enormous interrogation point."

C. P. DADANT.

# The Cycle of Seasons in Different Apiaries in Georgia

By J. J. Wilder

WE might include in this, almost the entire Dixie land except Florida, as the State of Georgia extends from the low, flat, level coastal lands to the Blue Ridge, and their honey plants, their season of blooming, etc in all the Southern States correspond very nearly with that of Georgia.

There is a clover belt in Alabama which extends up into Tennessee. This particular section I am not familiar with, as I have never kept any bees in it, and what I know is mostly through correspondence.

In this great clover belt is located the largest queen-breeder and shipper of bees in all the South. But few if any great honey producers are located in it. So we might infer that the season is more uniform, beginning early, having a long, almost even season, ending late, except as adverse weather conditions may bring about changes. It may be that the honey-flow never is heavy enough for a great honey harvest, but just enough to keep brood rearing going at a good pitch and some feeding done to keep this up at more adverse times, resulting in lots of bees and only small amounts of honey relatively.

The same condition prevails in northern central Florida in the partridge-pea belt, which has come under my own observation.

Let me go back to general conditions prevailing in Florida. Let no beekeeper think that our country is great for beekeeping because we have so many small honey-flows; that bees will keep strong and colonies continue to exist. Far from it. Our great loss in colonies actually occurs between these honey-flows and our winter losses are almost negligible.

A colony may show up well on a small honey-flow and at its end be very strong in bees and not light in stores, and before the next honey-flow collapse and be lost. There may be no nectar or pollen between. So we have to leave the honey and keep it equalized. Maybe the next flow yields a little and the next a little and so on.

Most of eastern, all of southern Georgia and largely southern Alabama have the same season and about the same honey plants throughout. Spring titi and the many different varieties of huckleberry grow widely over this great belt. The first warm days in middle February they bud and by the first of March they are out and the bees are bringing in nectar and pollen every day, weather permitting.

Maple is also out at this time, being very abundant along streams. Now is the beekeeper's chance. In this section it is not a matter of stores, but a matter of brood for the bees and as soon as these honey-plants are well started blooming, all colonies must be looked through carefully and the stronger ones with much sealed honey in the brood-nest must be given empty combs in the center. Bees must be carefully examined each week and as the weaker ones begin to strengthen and the weather gets warmer give them an empty comb, likewise.

On the third round, which is about the 10th of March, the strongest ones will need supers and on the next round general supering will be necessary.

Then we may expect swarming to start, and we are right in the main honey-flow which continues till about May 25, and at which time all the bees not in reach of cotton fields must be left with plenty of stores for summer and fall, or they will dwindle and some colonies be a total loss before winter.

Colonies in easy reach of the cotton fields can be extracted closely, leaving only a few pounds of honey. In late July, cotton and velvet-beans begin yielding and a slow, steady flow is on until the latter part of August, at which time all honey can be removed except 15 or 20 pounds to carry bees over fall, during which time they continue to breed more or less.

### The Red Hills

Leaving the low and level country, which is for the most part only a few feet above sea level and better known as the Altamaba Grit Region, with its larger streams in most places lined with white tupelo gum, its smaller ones with titi and flats almost a mass of gallberry, which extend the honey-flow on up to about June 1, we now pass up into a far more elevated section, which is several hundred feet above sea level, and with this we sweep over the largest section of Georgia. The soil is mostly red and the land for most part badly broken, but in it is some gray and sandy as well as rocky soil, which makes some change in the honey flora. In this region the poplar is the most important honey-plant. It lasts until early June. Here there are plenty of pollen plants and bees must have more stores for winter, say 10 or 15 pounds more. All increase should be made on this flow and at its close plenty of stores should be left in the brood-nest and some besides in supers. The blackberry is also a good yielder here and its flow may be expected towards the latter part of the flow from poplar. Along large streams there is some black tupelo gum which gives the first real honey-flow, and at the end of which poplar comes. Here brood-rearing should be encouraged early.

In the sandy soil the winter huckleberry gives a yield which corresponds in amount and time with that of poplar. There is also some gallberry in the extreme eastern part of the State, but the flow is light and comes at the latter part of the flow from poplar.

In the Red Hills a strange thing occurs with reference to the flow from cotton. In a small part of this territory it yields well, elsewhere not at all, being only a pollen plant. Cotton is extensively grown nearly all over this section, yet it only yields here and there even, apparently, in the same soil and subsoil, and under similar conditions.

Goldenrod and asters grow more or less here and give a light flow just before frost. They are a stimulant, but as a rule no surplus is expected from them.

J. F. Diemer's method of transferring with the box-hive below

**Blue Ridge Section**

Bordering on the Red Hills comes the Blue Ridge section, in which conditions are entirely different. With an elevation thousands of feet above sea level it is almost an unbroken forest and mountains; not so wide, but extending hundreds of miles forming the great water shed of Dixie land. More people keep bees here than anywhere else, according to population, and the bees are mostly in box-hives and log gums. Modern beekeeping is very slowly penetrating. In Tennessee it seems to have developed somewhat. As a rule, bees are naturally in better shape here than elsewhere, and I hope to live to see what beekeeping will be here in the near future.

In this forest bees follow nature more closely. If they are kept requeened, with plenty of stores, the only thing in the way of success is weather conditions.

Locust starts the flow in the latter part of April and gives a good yield for 30 days, though there is no inclination to swarm, so it is not time to make increase. After this, for 25 or 30 days, there is no honey-flow; then the chincapin and chestnut give a very light yield, bees consuming as fast as they gather. About June 20 a heavy flow comes all at once from basswood. Bees swarm and increase can be made and should all be done on this flow. Closely following this, sourwood comes on and a little swarming may be expected at the beginning of this flow, but it should be suppressed, for swarms at this time will not build up sufficiently strong for the winter. This flow lasts for about 40 days and is the best one in all that section and can be counted on for most of the surplus.

At its close a light flow may follow from asters, but it is not to be counted on, so plenty of stores must be left from sourwood.

Cordele, Ga.

## Winter Transferring

B. J. F. Diemer

THE final result of the experiment of transferring bees commenced in August and given in the January number of American Bee Journal has turned out very satisfactory. Out of the 38 colonies two failed to winter, one being queenless and the other short of stores in the upper hive. The 36 that were left came through the winter in good condition, plenty of bees, brood and honey. The box hives are still nearly full of honey, as there was plenty in the upper hive for them to winter on. In one of your letters you cautioned me against trying to transfer in winter the 18 that refused to transfer themselves in the fall. I decided that you were right and thought best to drum them up the first warm day in early winter. This I did by placing a hive body over half full of sealed honey and some pollen on the top of the box hive turned upside down. I was surprised at their readiness to go up in the frame hive; there being no brood in the box hive, it only took a few minutes to chase the whole bunch upstairs. I put the bottom-board under the hive body, leaving the inch hole open, so the bees could move the honey from the box-hive if they would. As it was quite warm today, I looked in all of them and found plenty of bees, brood and honey, all in the upper hive; but they haven't moved much honey out of the box yet. Perhaps they will as the weather gets warm. Perhaps some one would like to know how to get this honey out without melting it and having a muss. This part of it is past the experimental stage, as I have proved. Just bore a hole in the back end of the frame hive and a hole in the side of the box-hive and connect the two together with a short piece of rubber hose. The bees will do the rest if they have room to store the honey.

For several years I have bought all the box-hive colonies I could get, transferred them, gave them an Italian queen and in a few weeks they would look as good as new. A lot of box-hives in a neighborhood is as bad as a case of smallpox in a theater. You may be enjoying the play and at the same time catching the disease. But I am glad to say I have never seen a trace of foulbrood in any of them. Believe me, I am done cutting out old crooked combs and trying to fit them in a good new frame. Of course this has been avoided, but there is still room for improvement. Anyway I had lots of fun out of this job and will be keen to buy more box colonies.

Liberty, Mo.

## Co-Operative Selling Pays Texas Honey Producers

By Chilton Gano

THAT co-operative marketing can be made to pay right from the start was never better exemplified than in the case of the Texas Honey Producers' Association, which has been in operation only a year and a half and has already learned the secret of securing better prices and saving money in purchasing supplies.

The experience of this organization has been so extraordinarily successful that the writer believes every beekeeper should read about it. To convince readers of American Bee Journal that the story deserves to be carefully read from beginning to end, some specific figures on the success of the association will be given first, and the career of the association sketched afterwards. The instances were cited to the writer in February by Manager LeStourgeon, of the Texas Honey Producers.

A member of the association had 5557 pounds of honey for sale, packed in eight oak barrels. He was offered 8 1-3 cents per pound and was ready and willing to sell it. The association learned of the matter and asked to be permitted to handle the business. The request was granted and the honey sold to a New York firm at 12½ cents per pound.

Another member had several tons of rather strong and unpleasantly flavored honey which he had been willing at one time to sell for 4 or 5 cents per pound, for baking or feeding purposes. He decided to put it in the hands of the association, and it was sold at 10 to 12 cents a pound.

**Saved $76 on Cans**

In saving money on purchases of supplies results have been equally good. One member of the association who needed a car of honey cans secured price quotations from his dealers, thus learning the lowest figures at which he could buy through that channel. He then placed the order with the association, and saved $76 on the transaction.

A non-member of the association not long ago sold 135 pounds of wax to a San Antonio dealer at 28 cents a pound. The association, at the time, was paying 30 cents a pound, at San

Antonio, and 35 cents f. o. b. Hamilton.

The San Antonio Express, in a feature article on the association's work, recently made an estimate of the savings that would have been made for the beekeepers of one little town in a year if, instead of purchasing supplies and merchandise in small shipment lots, they had followed the association's co-operative buying plan. The saving on freight alone, in the case of whole car lots, figured out at $640, and the saving through securing of wholesale prices figured at $704. The saving from association buying alone would thus have been $1344 for the season.

Other instances of the kind mentioned will be given in what follows. These are not special instances, but may be considered as typical of what the association is accomplishing.

### Co-operation Was Needed

Generally unsatisfactory conditions as regards the marketing of Texas honey was what led the Texas Beekeepers' Association, after twenty-five years of existence as a mere social and educational body, to take up the matter of co-operative marketing.

In July 1916, extracted honey was a drug on the South Texas market, securing around 5 cents per pound, while comb honey could not be sold at 7 cents in the majority of cases. This was in spite of the fact that amber extracted was selling at 7½ cents in California and that Colorado honey grading with the Texas product was 8½ to 11 cents in Denver. In the words of Manager LeStourgeon, "The Texas price was an artificial value, born of ignorance on the part of the producers and a ruinous competition among themselves."

As regards the attitude of the Texas wholesale and retail trade towards Texas honey, it was as discouraging as possible. The handling of honey had been for years a very unsatisfactory business to the grocery trade, with no stability in price and no organized sources of supply. A man might buy a few cases and soon find a competitor far underselling him because of the latter having secured a bargain from a producer ignorant of what a reasonable price should be. There had also been a lack of uniformity in pack and grade, so that many merchants had ceased to handle honey through disgust at the great variety in appearance, flavor and color and inability to secure a steady supply of a uniform grade.

At the time the co-operative idea had been making headway in South Texas, enough farmers having become interested so that action was being secured at the State Capitol in obtaining a law authorizing the formation in Texas of the co-operative form of corporation. To the honey producers it seemed the logical time to do something drastic, and 79 beemen from 19 counties held a meeting at San Antonio in July to discuss marketing conditions. The result of the meeting was the adoption of a plan whereby every producing center should organize under one head for co-operative purchasing of supplies, co-operative selling through a sales manager, thus eliminating the brokers, and establishment of a central educational bureau to disseminate market information, teach best methods of packing and shipping, etc. It was decided that the information bureau should serve the entire industry, whether members of the association or not, and that all Texas beekeepers should be eligible to membership.

### Opposed by Big Business

The association, which took the name of Texas Honey Producers' Association, did not have entirely smooth sailing at the start. Certain supply interests attempted to discourage the movement by even selling at a loss in order to quote lower prices than the association could quote. For a time cans for honey packing could be purchased in South Texas at a lower price than at any other point in the United States, in instances even lower than the carload price of the largest manufacturers. The better known bee supply houses, however, did not take part in this unfair competition, and the producers saw through it and presented a united front, as a whole.

They were strengthened in their stand by another result of their first meeting. For an immediate result of their determination to co-operate was the advance of honey prices in Texas 2 cents per pound. This took place within six weeks, and was accompanied by no advance whatever in consumer prices.

It may be said, in general, that the first decision to co-operate, in a section where prices are lower than reasonable, can usually be made to advance prices, if the producers stick to their guns. Exactly the same thing happened in California, when the prune growers of Santa Clara Valley organized. The speculators had been selling futures in the east at prices which showed they intended to buy from growers at 3 to 3½ cents. The growers got wind of these prices, and for the first time rebelled. They did not believe the reports of a very large crop circulated by the speculators, and they held a mass meeting and established a bureau to investigate. The investigation proved a normal crop only would be harvested, and the bureau advised growers to hold for 5 cents. Though there was no real organization, except of the flimsiest kind, a majority of growers heeded the advice, at least partially. Most sold at 4 cents or better, at any rate, and in the one season the single recommendation saved the industry half a million dollars. The success led to closer organization for co-operative marketing, and the California Prune and Apricot Growers', Inc., are now fully established and are already advertising "Sunsweet Prunes and Apricots," on a small scale.

(To be Continued.)

The Pussy Willow down by the creek

# My Neighbor's Garden

By C. D. Stuart

MANY years ago, my neighbor, although possessed of the conventional garden, is said also to have cornered that huge tract of nature's garden lying just above and beyond my apiary, fenced it, posted it and otherwise prepared it for his own exclusive enjoyment.

"Buckin' natur' right from the start," was the verdict of his old gardener when one morning he descended from where the chimneys of my neighbor's mansion loom like battlements against the sky, to repair a broken fence in the ravine near my beehives. "Just look a' that!" He waved his arm toward the expanse of wooded hills. "Two thousand acres! No man can keep all that land to hisself."

"Not while my surplus honey comes from it," I agreed.

The gardener's eyes widened. "What from?"

"Pussy willow down by the creek, first. After that the wild blackberry—not much nectar from it, but plenty of pollen for the brood. That square I sent you Christmas was Ceanothus honey."

"Thought I smelled Wild Lilac when I went into it!" he grinned.

"Same thing," I told him; "a flowering shrub."

"Wild Lilac! You'll have some crop this year; hills are blue with it. That last you gave me was good honey, too.

"It came from poison oak——What are you staring at, man?" I demanded; "your land is covered with it."

"It was covered," he corrected. "I dug out miles of it makin' trails for the Missus. Carried my swollen arms on a pillow for a week after!" He stopped and eyed me blankly. "Say, neighbor, poison oak juice is black, an' just natcherally burns a hole in you wherever it touches; that honey was white. Are you sure it was poison oak?"

"Positive. Nothing else in bloom when the bees made it."

"And I ate it!" Overcome by the thought, he sat down on a boulder and fumbled for a smoke. Suddenly he laughed. "That's a good one on the boss—takin' all that honey right from under his very nose!"

Wild Lilac Bordered Trail.—Photograph by John R. Douglass

"Bees don't know they're trespassing. They can't read the old man's signs."

"Nobody reads 'em. Tell me! Why are signs like prohibition?"

"Give it up," I answered.

"Don't prohibit," he roared, his breath redolent with local option.

"Your boss owns the land," I reminded him; "if he gets joy—"

"He don't!" interrupted the gardener, and lovingly lit a long, black cigar. "Made 'im simply wild to see anybody else enjoyin' his property, an' he went broke tryin' to enjoy it by hisself."

"Well, he ain't exactly in the bread line," admitted the gardener, in answer to my scarcely-veiled curiosity; "but hog-tight fencin' an' fancy bull pups cost a lot. Then old Miss Riley got bit," he continued, between puffs. "She was pickin' blackberries on his premises, but the Court wanted to know who owned the dog. That one bite cost $5,000, cash money."

He smoked on, recalling other intimate details.

"Next, Jim McCarty's goats broke in. The dogs investigated, and old Billy landed on him, then went on browsin' just like nothin' had happened. Jim owned right up the goat was his, but pay damages? No, sir. Said no dog's neck was wuth $500, no matter what his pedigree; an' as fer three acres of Wild Lilac, that was only fit fer goat fodder anyhow—not knowin' it was Ceanothus an' good fer honey. Besides that he said the goat was grazin' on his land that the boss had fenced in. Before the Court could decide which was a lyin', along came a fire an' burned the fence. Another $5,000 went to clear the titles an' buy new fencin'. All that," condescendingly, "was before your time."

I nodded.

"Fences are a lot o' worry," he mused. "Don't last no longer'n it takes to fix 'em. That's what put the old man in the hospital."

It was my turn to stare. My neighbor in the hospital! It seemed but a day since he had passed, peering this way and that as though to make sure the world were in proper order.

"Yep, nervous prostration. 'Course hunters do get in an' shoot a rabbit now an' then," the gardener continued; "but I've found 'em pretty decent sort o' fellows. They," with a last lingering puff, "sure smoke bully cigars."

"But the flowers—ferns and azalias—are they safe?"

He rose and picked up a roll of wire. "The people are harmless—mostly convalescents and lovers explorin' trails, or tourists lookin' fer a view, or mebby a tramp bouscarin' round fer a warm place to sleep; or them automobile picnickers always wantin' a spring handy to shade; an'," with a sly wink, "your bees after our poison oak."

Having no cigar and no more honey till the new crop, I merely remarked that it was hard luck when a man couldn't enjoy his own garden.

"Too much of it; that's the reason. A cat's got no use fer two tails, an' one sting's a-plenty fer a bee, ain't it?"

"For all practical purposes," I agreed. "But if the bee had nine lives to protect, like the cat——"

The gardener gave the barbed wire an impatient twist. "Can't corner the earth and get away with it, not even if you had twenty lives. It's again' natur'."

The gardener is right. Again the Pussy willow has come and gone. The paths are fringed with clambering blackberry and the feathery bloom of Poison oak; the first blue haze of Ceanothus is on the hills; and my bees take their fill, unmolested. There is nothing to remind me that all this beauty is owned by an absent neighbor. It is as though the broad acres were mine instead. Indeed they are mine. Every curve of the shaded roads, every tint of foliage, every song of the streams, the fragrance, the sunshine, the panoramic glimpses of valley and hill and sky, all are mine—mine and the bees.' No man can take them from us, least of all the babbling old man who sits all day in a far-away hotel under the watchful eye of a trained attendant.

Los Gatos, Calif.

## Curing or Eradicating, Which?

By F. Dundas Todd

EARLY in the year 1911 I was invited to become a bee inspector for the Province of British Columbia, and my department chief asked me what I intended to do with any cases of foulbrood I happened upon. I asked a little time to consider the question, and this I devoted to going through all my bee literature, reading everything I found upon the matter and making note of results. Altogether I amassed a very considerable amount of data, and I gathered it all into two heaps. A very small one represented the region where it was claimed that foulbrood had been gotten rid of entirely, and remained free for a number of years,ten I think. The other big mass represented the regions where scores of men claimed to be curing foulbrood, but it was apparently still rampant in their districts.

I carried the piles to my chief, and arranged them on his desk, remarking, "This big heap represents the efforts of many men who cure foulbrood, and still have it, this single sheet of paper tells how Belgium got rid of the disease in 10 years, and still remains free of it. I propose to follow the example of Belgium, not pretend to cure it, but to wipe out by fire everything that I find in contact with the disease. Such procedure will probably raise an awful howl, but I am game to see it through, if you think the experiment is worth making." He decided it was, and has loyally stood behind his inspectors from that day until now.

In 1914 I came in contact with American foulbrood for the first time, and during the last half of the year it kept me quite busy. I need not go into details, as they were given in an article that appeared in the July issue of the American Bee Journal, showing how I stayed by the proposition, stamping it out wherever I found it. Needless to say I got considerable advice as to how I really should have comported myself if I wished to behave according to Hoyle, but it was all carefully neglected.

Well, I now have had four seasons' experience of fighting American foulbrood and am able to give results, and armed with these to do a little talking back, as I think it is a poor game that is played all on one side. So I have gathered together a batch of literature for the second time, and had another good look at the situation.

The human race never gets very far in any particular phase of activity unless it devises a measuring rod adapted to the conditions, so that it can check results. I think if we had a good measuring rod to apply to the foulbrood situation we would not have been deluged with so much oratory. In looking over the recent magazine articles at my disposal I find only one man, Wesley Foster, who catches a glimmer of its need, for in July Gleanings he says: "In our experience with European foulbrood we find something to learn every day. It is hard to eradicate but easy to cure. What is meant by that is that an individual apiary can be cleaned up readily, but it is difficult to clean up a district comprising 20 apiaries." He states the proposition exactly as I saw it in 1911, so the standard I set for myself was this, in how short a time can I eradicate the disease from an infected district? One of my own beekeepers, a good student of apiculture, evolved the same idea when he learned I was burning infected cases. He said, "All right, I'll give you five years to see what you can do, and if you have no definite results by that time, then I'll want a different policy."

Well, here is a measuring rod provided for me, the combination of the ideas of these two beekeepers. If he

No more Poison Oak for the Missus.—Photograph by John R. Douglass eradicates foulbrood from an infected district in five years, a foulbrood inspector is to be considered successful, if he does not, he is a failure. I wonder how many bee inspectors will toe the mark on that proposition.

The shaking system to cure foulbrood has been in vogue since 1891, when McEvoy introduced it to this continent; he published details in 1895, twenty-three years ago. It has been tried from Maine to California and from Ontario to the Gulf of Mexico, so let us see what its advocates have to say for themselves.

In the U. S. Department of Agriculture Bulletin No. 75 there is a paper written in 1908 by Dr. Burton N. Gates, on Bee Disease in Massachusetts. On page 30 I find a heading "Brood Diseases Can Be Controlled." Under it he says, "It has been thoroughly demonstrated that by judicious and persistent manipulation both of them can be successfully controlled and suppressed."

Then, to show what really can be accomplished, he says, "The State nearest to Massachusetts is New York, where the annual loss of bees alone is shown in the following figures:

| | |
|---|---|
| Previous to 1899, in a limited area the loss of bees alone is estimated at | $39,383 |
| In 1899, when concentrated effort to suppress bee disease was begun, it amounted to | 25,420 |
| In 1900 | 20,289 |
| In 1901 | 10,853 |
| In 1902 | 5,860 |
| In 1903 | 4,741 |
| In 1904 | 2,220 |
| In 1905 | 1,725 |

"In the other states the encouraging results of inspection and persistent effort to suppress the inroads of disease are similar."

Observe, this was a concentrated effort, continued for seven years. Yet, in the seventh year foulbrood was still present, in fact the cases of that year apparently amounted to 6.8% of what was present in 1899. There was assuredly no complete eradication in five years in this case, so it fails by the measuring rod provided by Foster and Brookes.

I would like to know the condition of that district today, twelve years afterwards, especially when I read in September Gleanings on page 719 the following note about this very same State of New York: "Chief Inspector Geo. H. Rea drew out the fact that bee disease, both European and American, had wiped out a good many small yards throughout the State. There were not half as many bees as were formerly kept, but inspection was now under way, and he hoped the disease would be brought under control."

After 18 years' experience thus is chased the great delusion.

Let us take all the references I find in the bee journals for the past year. In the American Bee Journal for January 1918, I find Mr. Morley Pettit giving a report of a meeting of the Ontario Apiary Inspectors and I am tempted to make a few quotations. The shaking system was begun in Ontario by McEvoy in 1891, and has been kept up ever since; so it has had 27 years' trial. For a great many years there have been sixteen inspectors in the Province, but it is only fair to say that they do not devote nearly all their time to the work. If curing foulbrood is as effective as it is held to be by its advocates, then in 27 years surely the disease in Ontario would be chiefly conspicuous by its rarity. Let us see.

Mr. Pettit says, "Unfortunately, comparatively few apiaries infected with either disease have been found to be entirely cured, yet it might safely be said that the expenditure of time and money from year to year has not been without benefit, etc." Again, "Seven hundred and seventy-eight apiaries were inspected and 203 of these were found to be diseased with either American or European foulbrood. Eight thousand five hundred and fifty-seven colonies were examined and 1,132 were diseased." That is to say 20 per cent of the apiaries and 13 per cent of the colonies examined were found affected with foulbrood. This after 27 years of curing.

Wild Blackberry thicket.—Photograph by John R. Douglass

In July Gleanings, J. F. Byers lets a shaft of light fall on the situation when he says, "European foulbrood is rapidly spreading in Ontario." But in 1911 a searchlight was thrown on the situation in that Province when one of its most famous beekeepers summed up the situation by declaring to me that what Ontario needed was at least 1200 bee inspectors. I am beginning to wonder if the disease has not been shaken all over the Province when the bees were shaken out of the hives.

I began my beekeeping career in Cook county, Illinois, and am naturally interested in conditions in that State, so I read carefully the report of Inspector Kildow on page 961 of December Gleanings. He says, "Notwithstanding more apiaries were examined than ever before last year, less disease was found than during the year before, proving that foulbrood is not only being held in check but that its ravages are being considerably mitigated." I see nothing in that sentence to indicate that the shaking treatment will eradicate foulbrood from a district in 5 years.

The situation in California is disposed of by P. C. Chadwick on page 924 of December Gleanings in a few words, "California has disease. There is not a county in the State, unless it be very remote, that has not disease." And this is the home of the big professional beekeeper. One of their beemen told me they were shaking all the time.

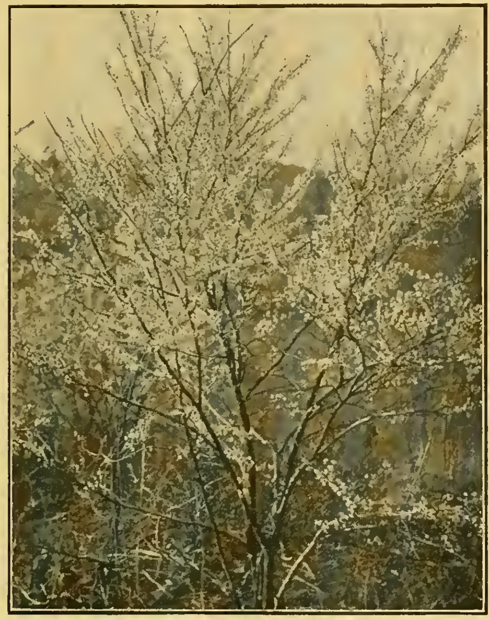
On page 271 of April Gleanings, I find A. C. Ames remarking about conditions in Iowa, "It is rare when we go through a county one year that we are able to go back in that county the next season; and we all know, if one has much disease, that it is very seldom that one clean-up will get all the infection." In plain English, shaking as practiced in Iowa, cannot possibly eradicate. So the situation is never in hand, and in short cycles the bee inspector begins the weary grind all over again.

Lastly, I want to point out that in the A B C of Bee Culture there is printed U. S. Census Statistics to show that in the whole country there was a drop of one million farmer, that is small, beekepers between 1900 and 1910, being a loss of about 14 per cent. The heaviest losses occur in the most densely populated States, running from 23 per cent in Pennsylvania to 40 per cent in Vermont. Utah tops the list with a drop of 49.5 per cent.

When in 1911 I looked at similar data as is given above it did not take me long to make up my mind that, as practiced, the shaking treatment was not all that it was cracked up to be. And I could not get away from the clear-cut statement about the condition of little Belgium, foulbrood wiped out in 10 years by fire, and none existing for 10 years or more.

Now for the other side, the test by fire. In 1914 I found American foulbrood in the following districts: Chilliwack, Coquitlam, Point Grey, Vancouver City and South Vancouver. From Chilliwack to Vancouver the distance is fifty miles, the other districts lie between these two points. As far as I can trace, the disease has been in Vancouver City for over a dozen years, anyhow it was badly scattered over an area six miles by ten, small apiaries being common. In October, 1915, I had a hurry-up call from Nanaimo and found five affected apiaries spread over about ten miles in a straight line.

Each season I followed the situation closely, using what one editor described as heroic methods. I am now able, using Parliamentary language, to report progress. In 1917 I failed to find the disease in any of the districts mentioned, excepting South Vancouver. The heroic treatment by fire apparently will face without flinching the measuring rod of Foster and Brookes.



The Red Bud is one of the earliest of bloomers

Were it possible, I would like to make a statistical comparison of the results attained by the two systems of handling foulbrood; but alas, I cannot lay my hands upon any definite figures published by other inspectors. It seems to me there is a crying want for a uniform system of statistics for bee inspectors, so that the beekeeping world can ultimately develop a system of maximum efficiency, and decide definitely whether shaking or complete extinction is the most efficient and economical in the long run. The following quotation from an article in the Saturday Evening Post of January 12 is illuminating. Speaking of the famous Sir Eric Geddes, the writer says: "I once asked him what single rule had been of most service to him. Quick as a flash he snapped out 'the use of statistics. I statistize everything; knowledge is power, and the throttle valve of every business.'"

Since the above was written I find in Gleanings of January 1918, on page 27, the following paragraph written by J. F. Crane:

"E. G. Baldwin informs us that they at last have American foulbrood on the east coast of Florida, and considers F. Dundas Todd's article in the American Bee Journal as both timely and refreshing. I consider his method of combatting this particular disease quite out of date in this part of the world. I am not denying that his scheme of cremation is a sure remedy for every colony treated. So is burning a barn to rid it of rats a sure cure. The editor of the American Bee Journal advocates saving the hives, but why not save the combs and render them into wax?"

My answer is, the purpose of the bee inspectors' work, as I see it, is to eradicate foulbrood, that above all things. If at the same time he can save wax, hives and bees, so much the better, but these are emphatically of secondary consideration. I have a suspicion that in the mind of the average bee inspector the by-product is becoming more important that the regular output. Will Mr. Crane kindly oblige by applying a Foster-Brookes measuring rod to some of the districts in his territory and tell us the results? Let him put the emphasis on his real job, which is the eradication of foulbrood, and talk about the saving of by-products afterwards. I don't care how much wax he has saved, I want to know if he has cleaned up a district, and how long it took him to do the job.

Mr. Editor, I place my cards face up on the table and call for a showdown. I am tired of the generalities that have been printed in the bee journals for years; I want statistics. I want to find out if for twenty or more years the bee world has been chasing a great delusion, or can give solid reasons for the great faith it has shown.

Victoria, B. C.

## A Plea for Uniformity

By F. Greiner

A RESOLUTION was passed at the recently held New York State Grange meeting in Syracuse to the effect that manufacturers of agricultural implements be compelled to use standard bolts in the construction of all farm machinery. The beekeepers are not using any bolts in the construction of their honey boxes or other paraphernalia, nevertheless uniformity in and standardizing of the many things apiarists use is of great importance and should receive our most earnest attention. Mr. Dadant says in his recently issued catalog and price list of hives and apicultural implements: "We especially warn beekeepers against trying to invent a new style of hive, as thousands of hives have been invented which are not worth the paper on which the design was printed." I would add to this "and hives are now being invented which are no better."

But let us start with the honey-boxes, the sections. How much better it would be if all comb honey produced was stored in sections of the same size. We could not estimate such an advantage in dollars and cents. We may talk of settling on a certain length of the L-frame top-bar, or on the depth of the frame, its spacing, the uniformity of hives, etc. We may settle these points to our satisfaction and when we have done so the general public will not be affected. But when we unite on the section we will have accomplished something far-reaching as touching thousands and thousands, benefiting hundreds and hundreds of dealers and manufacturers besides benefiting every comb-honey producer in ever so many ways.

It is an idle question if I should ask "What has been gained by contriving the 3⅝x5, the 4½x4½, or any other odd-sized section?" The answer would be, "Nothing; only confusion has been produced thereby." The only point gained, it may be said, is the advantage of the no-beeway feature. That the 4¼ section should be better than any other is not my contention, but, since the most popular frame now in use is the L-frame, and as this frame has as its measuring unit the 4¼ square section, being 2 high and 4 wide, and further, since this 4¼ square section is the one most in use, I hold that it is the one we should adopt.

It is very true if we did not try out

new things, either those of our own invention or as suggested by other thinkers, we would not become wiser, we might stand still and never make any progress. We must do a certain amount of experimenting. I myself have in my yards several styles of hives; one has the jumbo feature, another the standard L, another the half-story frame or interchangeable sectional feature. Yes, and I have used the box-hive. Any of these hives have their valuable feature, but if I might begin beekeeping anew, I would not hesitate one moment but what I would select the regular single-walled Langstroth hive with its tiering up principle. I verily believe that all those successful honey producers who are now using other hives, jumbo-framed or miniature half-story hives, would be equally successful with the L-hive. It is a matter of adapting the management to the hive, that's all. In view of the many advantages that uniformity in hive and hive fixtures affords, it would seem to me that the time is now here for our beekeepers' societies, our apicultural writers, our various bee inspectors and other bee authorities to turn their attention to this subject of uniformity, and particularly to standardizing the section. Mr. S. D. House, in his zeal went so far as to demand that the New York State Association of Beekeepers' Societies at their last session in Syracuse go on record as establishing a standard section, if necessary to ask the legislature at Albany to pass a law making it illegal to offer comb honey for sale in New York State except same is stored in the to-be-adopted section. A committee was appointed at this meeting to have this matter in charge. As chairman of this committee I would ask the cooperation of all beekeepers in this and in other states. Let this subject be discussed from an unbiased standpoint; let us put aside our notions, make concessions for the good of the cause.

Naples, N. Y.

---

## Food

# A Visit to the Food Administration

By Mary G. Phillips

ONE cannot help but be impressed by the change which has come over Washington since war was declared. It used to be that one could stand on the sidewalk outside the historic and picturesque Octogon House for hours at a time and see nothing more exciting pass than an old-fashioned barouche drawn by ancient horses, and driven by a still more ancient colored driver, but now if you stand there for more than a minute or two, you are jostled by the passing throngs of hurrying people, and instead of the faded upholstery of the barouche your eye catches glimpses of shiny enamel as the autos speed past. The sleepy, indolent air of the streets is a thing of the past, swept away by officers in khaki striding by, groups of young business women hurrying along, by sailors, civilians, foreign officers in vari-colored uniforms, all wearing the air of going somewhere with a purpose.

If you follow the stream going south you will find that most of the atoms which make it up are headed for one of the large gray buildings which now form a drab background for the Spanish beauty of the Pan-American building, the classic marble of the home of the D. A. R., and the white simplicity of the Red Cross building. The low, modest, gray structures are unpretentious, and of temporary construction, but what they lack in artistic beauty is made up by what one discovers is going on inside. The streets surrounding the tremendous area which they cover are lined all day with automobiles, and up and down the few steps at the entrances someone is always coming or going. One of these buildings is marked "Food Administration," and the minute one enters, the atmosphere of work is felt—work tremendous in quantity and importance.

Just inside the door are desks as in a hotel lobby, where you inquire for the person you desire to see. He, or she—frequently she—is telephoned to, and a boy acts as guide through a labyrinth of halls, up stairs (there are no elevators), round corners, past innumerable doors, until you find yourself entering a large, light office, where the person you wish to see comes forward cheerfully and courteously, ready to tell you anything you wish to know.

Of course, you wish to know everything, and as you imbibe knowledge your respect and wonder for the great mind at the head of the Food Administration increases by leaps and bounds. You learn that there are many divisions of the Food Administration, each division being divided into sections, each with its staff of specialists from all parts of the country. Every commodity has its section, or if it is specially important, like sugar, it has a division devoted to it. Then there is the Educational Division, which includes a Women's Magazine Section, a Farm Journal Section, a Library Section and many others. As you meet more and more of the workers, each wearing a Food Administration button, you cannot help but feel their tremendous earnestness, their enthusiasm for their work and their devotion and unswerving loyalty to Mr. Hoover.

A young girl in the Farm Journal Section said to me: "You must go upstairs and see the muffin exhibit that was made for the State men when they came here for a conference this week." Of course you know that each State has its food administrator, but do you know that frequently these men come to Washington for personal conference with Mr. Hoover? Those are the days when it is wise to keep away from the Food Administration Building, for no one has time for any individuals who are not "State men." We went upstairs and down long halls until we came to the conference room. At the front of the room someone was talking to a group of twenty or thirty people; at the back stood a camera man photographing muffins with the help of the artist who had made them and who was carefully cutting them in half to show the texture. There, on plates, were at least fifty different kinds of muffins made in the kitchen of the Food Administration, and not one had less than 50% wheat substitutes, many of them contained 75% wheat substitutes, and some were 100% corn flour, rice flour, barley flour or buckwheat flour. And what is more, every one that I tasted was palatable as well as good to look at. They were tender and light and show what we can do if we try. Miss Roberts, who had taken me to see the exhibit, turned to say: "Well, I made chocolate cake with 75% buckwheat flour this week that was delicious, and my mother is now making all her bread with at least 75% wheat substitutes." There is the spirit of the Food Administration workers—they are more than living up to the food pledge! They are not like the woman who was heard to say recently, "All this talk about wheat substitutes passes me by!" And that woman was knitting socks for her nephew at the front, while talk of wheat conservation "passed her by!" It seems incredible that that could have been said in Washington with those thousands of earnest people in the Food Administration so near at hand.

On every office wall in the Food Administration building are posters of food conservation, many of them beautiful pictures, all of them with forceful sentiments—"Food Will Win the War," "Eat Less Wheat, and We'll Beat!" "Serve Simple Food, and Just Enough." Then the walls of the halls are utilized to display posters made by school children of different parts of the country. These are well done and the educational work that they accomplish for food conservation is obvious. Some showed fruits and vegetables in artistic groups with "Eat These" below them; others showed bags of sugar, fat pigs and red cows with "Send These Abroad" beneath. One picture evidently by a small youngster, was a sugar bowl, with "Let Me Alone" printed on it.

The Library Section is a most interesting room where exhibits are prepared for Public Libraries everywhere in the country. While posters carry their message, they may be forgotten, but who can forget an array of tiny toy soldiers with bayonets pointing toward a herd of cows and pigs with the legend, "Back, Meat! Shipping Space all Taken!" Near by is a toy train, labeled "Wheat," with soldiers in a line beside it, saying "Forward, Wheat! We

Will Get You Across;" That was the sentiment expressed by everyone with whom I talked that day—deep regret that the meat which has been saved and was at last on the Atlantic seaboard could not be sent across for lack of ships. Wheat is needed most—that will have to go—the meat, for which there is not adequate storage space, will have to be eaten. Frederick Palmer, Military Censor for the American Expeditionary Force, was undoubtedly right when he said in Washington not long ago, that "every man, woman and child in the country should be talking ships, ships, and yet more ships."

The wheat shortage is more acute than it has been at any time since the war began, one of the saddest parts of it being that in 1917, 11,000,000 bushels of wheat were sunk by German U-boats. That is why the Food Administration's most insistent drive is to save the wheat. If we are to furnish the allies with the necessary proportion of wheat to maintain their war bread from now until the next harvest, and this is a military necessity, we must reduce our consumption to approximately 1½ pounds of wheat oroducts weekly per person. That is 78 pounds per person per year, or about half as much as we have been consuming if we have faithfully followed the food pledge. While up to this time we have been asked merely to limit ourselves to 150 pounds per person per year, the soldiers have been eating wheat at the rate of only 131 pounds per person per year. They must have a full allowance, and it is so little for us to do here at home—merely to eat corn and oats, of which there is a plenty, and to use more potatoes, of which there is a surplus, in order to give our brave soldiers and allies the needed wheat. There are many thousands of families in the country using no wheat products whatever, except a very small amount for cooking purposes, and they are doing so in perfect health.

No doubt every beekeeper's wife is working "from her eyes up" in her efforts to use the substitutes for wheat that are available in her community. If you can get buckwheat and cannot get rye, try out all the buckwheat recipes you can find, and experiment yourself, carefully, of course, using a good bread recipe, and substituting the buckwheat for the greater part of wheat called for. I have tried all the substitutes I could buy, using the same recipes all the time, and although the family like some of the breads better than others, they have eaten them all with relish. If we serve purely wheatless breads two or three days out of the seven we will be doing no more than our share, which should be twice as much as we are asked to do.

The following recipe is a special favorite with my family:

### Mush Rolls

1 pint of liquid (generally half milk, half water).
½ cup of white cornmeal.

Cook these together for one hour, then cool until lukewarm. Then add
1 tablespoon of shortening.
1 tablespoon honey.
1 teaspoon salt.
1 yeast cake dissolved in ¼ cup warm water.
Enough flour to make a stiff dough.

Knead and let rise until double in bulk (about 3 hours). Knead again and shape into rolls. After the second kneading, they are slow in rising, but if set at night, using only ½ a yeast cake, they are ready for lunch the next day.

On days when the yeast bread gives out and we are ready for a change from corn bread, we like the following:

### Oatmeal Mush Bread

2 cups of cold oatmeal porridge.
1 cup of corn meal.
½ pound of dates or raisins.
1 cup of milk.
1 tablespoon of salt.
2 eggs.
2 teaspoons baking powder.

Put the cold oatmeal and milk into a double boiler over the fire. When hot, slowly stir in the corn meal. Cook until the mixture begins to thicken, take from the fire, add the beaten eggs and the baking powder. Pour the mixture in a greased shallow baking pan, the bottom of which has been covered with the chopped dates. Bake in a moderate oven for a half hour.

Another quick bread without wheat is this:

### Corn Meal and Hominy Bread

1 cup cooked hominy.
1 cup milk.
1 tablespoon melted butter or vegetable oil.
1 cup white corn meal.
2 eggs.
1½ teaspoons salt.

Mix the ingredients and bake 30 minutes in a moderate oven.

Hominy grits is a most satisfactory form of corn, for it can be used in so many and varied ways. It serves as a breakfast cereal, being specially good when raisins are added. Then it is splendid to use on your meatless day, in the following way:

### Baked Hominy Omelet

Soak and boil 1 cup of hominy grits. When well done and while hot, stir in 2 eggs well beaten.
½ cup sweet milk.
½ tablespoon shortening.
¾ cup of grated cheese.

Season with salt, pepper, paprika. Put in baking dish and bake in hot oven until brown (about twenty minutes). Serve hot.

### Hominy Pudding

2 cups cooked hominy.
1 cup molasses.
1 cup raisins.

Bake in a moderate oven about 30 minutes and serve hot with milk or a lemon sauce.

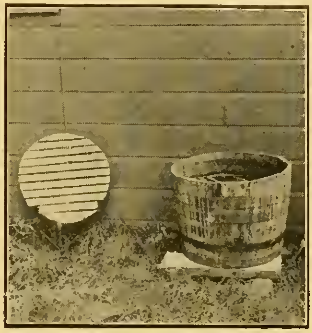
Do not forget that we are on the battle line, and these recipes are part of our ammunition! The enemy must not break through our wheat line!

Washington, D. C.

## A Watering Place for Bees

By C. W. Brimhall

THE cut shows a watering place for the bees, made of a half of a paint barrel. It is placed on the back side of the honey house and under an eaves spout, which fills it when it rains. In the barrel is a float made by nailing lath on strips of pine. After nailing, the float is cut in circular form to fit the barrel. I use two floats so that when one gets water logged it can be set in the sun to dry out, while the other keeps the bees from drowning. In hot weather the barrel should be scrubbed out to keep it fresh. If turned over and cleaned out just before a good shower, it will be promptly filled again.



A Good Watering Tub for Bees
C. W. Brimball

Schaller, Iowa.

## My Experience With European Foulbrood

By F. Kittinger

Read at the Wisconsin State Convention, December, 1917.

I FIRST discovered European foulbrood amongst the bees of my home apiary during the month of May, 1916. The disease developed from a queen purchased during the fall of 1915, from what was supposed to be a reliable source.

The colony that developed the disease happened to be one that was wintered in a house apiary, and as the colonies in the building were well supplied with honey in the fall, they were not examined until late in the spring. When I examined these colonies. I found nearly all more or less diseased.

All colonies that had been wintered in the cellar, and had been set out in this same yard, were examined early in the spring and no signs of disease discovered. After this early examination of the cellar-wintered bees, and before the disease was discovered in the building, I moved colonies from the home yard to both of my out yards. Some of the colonies that were moved had evidently contracted the disease between the time they were examined early in the spring and the time they were moved, as the next time I examined them I found diseased colonies that had been moved to both out yards.

Several of the colonies in the home yard that were near, or in a direct line of flight with the diseased colonies in the building, showed signs of disease early in the season, while the rest of the yard was comparatively free from disease until later in the season.

As the disease did not show up very bad until after the main honey flow, we secured a fair crop of honey from all but the few that were badly affected—a dozen or so colonies.

As soon as I discovered the disease I killed the queens in all the most badly affected colonies, and ordered young Italian queens from a reliable southern breeder for requeening. All colonies so requeened showed up free from disease in the fall, and were in a No. 1 condition for winter.

Expecting a wild-fire spread of the disease in the spring of 1917, I ordered 100 young Italian queens for delivery during May of this season.

The spring of 1917 found us with something over 300 colonies in fair condition. When these colonies were examined late in April and early in May very few showed any disease. This examination was followed by 7 or 8 days of very unfavorable weather when hardly a bee could fly. As soon as the weather was again favorable several colonies that were marked O. K. at the first examination were again examined. At this time it was found that the disease had spread so that nearly all colonies were affected—some being fairly rotten with the disease.

The first of my southern queens arrived the latter part of April, and about 80 per cent of my order reached me by the end of May. Owing to unfavorable conditions in the South, some twenty queens did not reach me until early in June.

As fast as a batch of queens arrived I killed the queens in the most badly diseased colonies and introduced a young queen at once. Early in the season I paid no attention to queen-cells, never opening a hive until the queen had been in a week or ten days. I think I lost about 15 per cent of the queens so introduced. The greater part of my loss I think was due to the very unfavorable weather for the work at the time.

All diseased colonies that were so requeened early in the season cleaned up the disease and stored a good surplus of honey.

Having been able to requeen only part of the affected colonies early, it was impossible to get up a sufficient field force in a great many colonies. Our average per colony for the season was thus greatly reduced by lack of sufficient field bees during the height of the flow.

I also used another 100 queens this fall, having killed off the old queens just before the end of the basswood flow. Eight days after killing the queens all cells were destroyed, and the colonies allowed to remain queenless until all brood had hatched before requeening.

I lost more queens by this system than where the young queen was introduced at the time the old queen was killed.

For my part, to clean up the disease, I prefer to get young Italian queens the latter part of April or early May. Unless one can do the requeening early, so as to get a good force of workers from the young queens in time for the honey flow, I think it best to double two or three colonies into one. I find there is no use trying to have weak colonies clean up the disease—double them up.

My system of doubling up weak colonies is to haul them to an outyard and pile two or three high. As soon as they have marked their location shake all bees into one body, and give a young Italian queen. Take all surplus brood-combs and put above a queen excluder over a strong colony. No bees return to the old stand by this system,

Owing to the lack of help it was impossible for me to requeen all colonies this season, but I intend to requeen all that show disease another spring, hoping thereby to have the disease under control.

Franksville, Wis.

[The attention of the reader is called to the following paragraph in the above interesting article:

"Eight days after killing the queens, all cells were destroyed, and the colonies allowed to remain queenless until all brood had hatched before requeening. I lost more queens by this system than where the young queen was introduced at the time the old queen was killed."

The above experience is exactly in line with the editor's own experience. Many people think a colony should be made queenless some days ahead in order to introduce a queen successfully. We believe, and this experience indicates, that the safest introductions with the cage method are achieved where the colonies were not allowed to be without queens for a single minute. It goes without saying that in the present case the colonies needed to be queenless for some days in order to help do away with the disease. But Mr. Kittinger's experience is of value as an object lesson in the matter of queen introduction.—Editor.]

# BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Eight and Ten-Frame Hives

Miss Emma Adkins is reported in the Beekeepers' Item as having made special observations this year in apiaries where 8-frame and 10-frame hives were kept side by side. She says, "A good many of the colonies in 10-frame hives made a fair crop even in this worst of all seasons, but those in 8-frame hives did little or nothing."

### Sugarless Desserts

Eat less candy; use less sugar in coffee, tea and chocolate; eat more fruit, nuts, popcorn, honey and syrups. A frosted top on a cake is a sign of criminal thoughtlessness at a time when millions of children in Europe are dying of tuberculosis caused by under-nourishment.

Here are some sugarless recipes, worked out by the United States Government, some of them in cooperation with the Universities of Ohio and Missouri:

Hot Rice or hasty pudding (cornmeal mush) served with a sweet sauce makes a simple, wholesome dessert. Chopped raisins or dates added to either, but no sugar is needed.

### Honey Sauce

1 cup honey.
¼ cup water.
1 tablespoon butter substitute.
¼ teaspoon salt.
¼ teaspoon cinnamon.
A dash of nutmeg.
Juice of 1 lemon or 2 tablespoons vinegar.

Boil together 15 minutes. The juice of 1 orange and grated peel may be used instead of lemon and seasoning in this recipe.

### Popcorn Candy

1 cup syrup.
1 tablespoon vinegar.
2 or 3 quarts of popped corn.

Boil together the syrup and vinegar until syrup hardens when dropped into balls or fancy shapes for the Christmas tree. Little popcorn men will please the children. Mark in the features and outlines with melted chocolate.

Either honey, maple syrup, molasses, white cane syrup or corn syrup may be used.

### Self-Spacing and Loose-Hanging Frames

In the well timed article of G. C. Greiner, page 55, February American Bee Journal, he speaks of giving frames of sealed honey in early spring, such frames having been kept over winter for this purpose, a proceeding which deserves the highest commendation. He says: "Every side-comb of every hive was taken out and glanced over, and when found empty or insufficiently supplied was replaced by one or two combs of honey. In connection with this observation, I wish to emphasize the great convenience of the loose-hanging frame and its superiority over any self-spacing device. A self-spaced frame would have greatly hampered this work and required much more time."

Coming from a man of Mr. Greiner's experience, this expression of opinion would incline one to believe that loose-hanging frames are to be preferred to those that are self-spacing. Yet "in this locality," where frames of both kinds have been used by the thousands, self-spacers are decidedly preferred. They have the important advantage when placing frames in the hive that not only is the spacing done exactly, but almost instantaneously. With self-spacing frames, even if one had such marvelous eyes that a small fraction of an inch could be measured, each separate frame must be slowly adjusted into place, the whole operation taking many times as long as with self-spacers. And this difference in time occurs every time the frames are handled, so that those who go through their hives many times in summer—and with many good beekeepers it occurs every ten days—will lose very much more time in summer with loose-hanging frames than they can gain in the one operation in question, which occurs only once a year, if it occurs at all.

Even in that one operation, there must be something wrong if there be any real gain with loose-hanging frames. If the self-spacing combs fill the hive quite full, and there is no dummy, then the difficulty of getting out the first frame is so great that one may well prefer loose frames. But there should never be such crowding. There should be a dummy easily withdrawn, after the withdrawal of which the loose hangers have nothing on the self-spacers.

Another item in the case is that with self-spacers the frames are always held square, bottom-bars as well as top-bars being properly spaced. With frames hanging loose, no matter how exactly the top-bars be spaced, there is always a chance for the frames to get out of square, so that occasionally bottom-bars swing so close that the bees glue them together.

### What We Eat, and What Happens to It

Under the above title a series of articles is being published in The Ladies' Home Journal, in explanation of which that periodical says:

"Up to now nearly all that we have known of what we eat when the food reaches the human stomach has been learned through the use of the stomach pump, X-ray examinations, or from experiments made on the stomachs of dogs. A direct method, however, has recently been developed in the Department of Physiological Chemistry of the Jefferson Medical College, of Philadelphia, devised by Dr. Martin E. Rehfuss, of Professor Hawk's staff, whereby it is now made possible to follow the transformations of the food that we eat, as it is actually digested by the human stomach, at every stage of the digestion."

The paragraph below is taken from the article in the February Ladies' Home Journal. It contains nothing strikingly new, yet appearing where it does, and meeting the eyes of so many thousands of women who never see a bee journal, it cannot fail of having an important influence. Let us hope that the statement that "Our children would be better off if we had them eat more honey and less candy" may arrest the attention of many an interested mother:

#### What Does the Stomach Say to Honey?

"Honey is about 75 per cent sugar, the principal 'sweeteners' present being glucose, fruit sugar and cane sugar, the latter being present in very small amount. The flavor of the honey is due to certain volatile substances which the bee extracts from the flower. Bread and honey is a combination which looms large in the average juvenile eye. It has good food value and is well digested, provided the child can curb his desire to use more honey than bread. If we take milk along with the bread and honey we have a very satisfactory luncheon. Our children would be better off if we had them eat more honey and less candy. The same is true of the syrups and of molasses; and the more old-fashioned they are in their making, the better."

## MISCELLANEOUS NEWS ITEMS

**Short Course at Ames, Iowa**—The second annual beekeeping short course will be held on May 13 to 18, 1918, at the Iowa State College, Ames.

In view of the necessity of increased honey production this year, the course will be made very practical and will include phases of management and practice in two apiaries.

Several successful commercial apiarists will assist us. If you are really anxious to make a success with bees and want to learn more about them, attend this course.

Opportunities for commercial beekeeping were never better and honey is now regarded as a food, not a luxury. The demand far exceeds the supply.

Many ladies have signified their intention of meeting with us and all are welcome. There are no fees and rooms and meals can be obtained at reasonable rates. The course is open to all interested in beekeeping. Programs can be obtained from F. Eric Millen, Ames, Iowa.

---

**Corrugated Paper**—Get large boxes of the heavy mill board, corrugated paper second choice; cut down the corners, lay out flat, paint one side with coal tar; then lay it, tar side down, in front of the hive to kill grass. It is surprising how long it will last.

DR. BONNEY,
King Bee.

---

**Honey by the Ton Going to Waste**—One eastern North Carolina county produced 35 tons of honey in 1917, reports Mr. Franklin Sherman. The beekeepers in this county assert that with proper distribution of bee-yards three times as many bees could be kept in the county with equally good results. Even allowing that 1917 was an unusually good honey year, the county could produce 100 tons of honey in average years if it were fully stocked with bees which were managed by good beekeepers. Yet this county does not include 10 per cent of the honey-producing plants of the eastern section—in other words, over 1,000 tons of honey are produced by the native plants of eastern North Carolina in average years, of which scarcely one-tenth is gathered for the uses of man. Think of what this means when honey is selling for around 15 cents per pound.—Extension Farm News, North Carolina.

---

**The Northern Pennsylvania Beekeepers' Association** met in Annual session at Towanda, Feb. 28. The meeting was well attended. The membership now numbers 35. Among the good things on the program was Prof. J. G. Saunders with his movie bee film. Also Chief Apiary Adviser Geo. H. Rea, besides local speakers. The next meeting will be in the nature of a field meeting and picnic combined, to be held in June at the home of the Secretary. All beekeepers welcome.

HARRY W. BEAVER,
Troy, Pa. Secretary.

---

**Massachusetts Federation of Beekeepers' Societies**—The following report is interesting from its federation features, aside from the fact that it shows activity on the part of Massachusetts beekeepers. In union there is strength and the example should be followed in every direction:

Each year there is an advance in beekeeping, which now requires the co-ordinate working of beekeepers. To this end, at Worcester, Saturday, March 23, an important gathering of the beekeepers of Massachusetts was held. There was a wide and representative attendance. Among those present were the Presidents of each of the five local beekeepeers' societies of the State, together with Secretaries and delegates from these societies. Absolute unity, enthusiasm and earnestness prevailed with but one aim in view, the formation of a "Federated Massachusetts Beekeepers' Association." By-laws were formulated and adopted. It was voted to incorporate. As the business of the meeting was rapidly transacted, the following officers were soon elected:

President—Mr. O. M. Smith, of Florence.

Vice President—Mr. O. F. Fuller, of Blackstone.

Secretary-Treasurer—Miss Dorothy

Quincy Wright, of Chelmsford.

The Presidents of each local Beekeepers' Association being present, announced three delegates to the Federated Association, whose terms of office were, respectively, one, two and three years, and in the order enumerated below:

Berkshire County Beekeepers' Society—Mr. C. M. Musgrove, Pittsfield; Mr. H. E. Hume, Dalton; Mr. L. D. Case, Pittsfield.

Eastern Masachusetts Society of Beekeepers—Mr. W. Schweitzer, Boston; Mrs. R. Goodenough, W. Roxbury; Mr. S. L. Davenport, Hathorne.

Hampshire, Hampden Franklin Beekeepers' Association—Mr. A. C. Andrews, West Springfield; Dr. D. D. Gorton, West Springfield; Mr. O. M. Smith, Florence.

Massachusetts Society of Beekeepers—Mr. H. C. Britton, Middleboro; Miss Dorothy Quincy Wright, Chelmsford; Mr. F. W. Frisbee, North Andover.

Worcester County Beekeepers' Society—Mr. W. E. Parker, West Boylston; Mr. O. F. Fuller, Blackstone; Mr. H. E. Bradish, West Boylston.

The By-Laws provide for a Board of Directors consisting of the following:

Provision is made for the Secretary of the State Board of Agriculture to act as Chairman, with the State Inspector of Apiaries; the President, Vice President and Secretary as the other members.

Members—The Secretary of the State Board of Agriculture and the State Inspector of Apiaries shall be ex-officio members.

Voting members shall consist of three delegates from each of the regularly organized beekeepers' societies of the State. Their dues shall be $2 annually.

As an associate member, any person who keeps at least one colony of bees is eligible, but associate members have no vote. Their dues shall be 50 cents annually, with an application fee of fifty cents.

After a thorough business session the meeting adjourned, subject to the call of the directors.

BURTON N. GATES,
Acting Sec.

**County Inspectors Alive in Texas**—One of the most interesting and instructive meetings held recently in Texas was the conference of County Apiary Inspectors at College Station, February 11 and 12. More than 25 county Inspectors were present and many valuable papers were read. Among them was a scientific and scholarly treatise on foulbrood by Dr. N. G. LeGear, of Waco. With a high power microscope and a number of slides he exhibited the bacillus of American foulbrood in all its forms and traced its life history.

Monday, Feb. 11, 1918—Forenoon Session—

9:00—The Inspection Service, F. B. Paddock, State Entomologist.

9:30—The College, Dr. W. B. Bizzell, President Texas A. & M. College.

10:00—The Experiment Station, B. Youngblood, Director Experiment Station.

10:30—The Extension Service, T. O. Walton, Assistant Director of Extension service.

11:00—Apicultural Instruction, Prof. S. W. Bilsing, Professor of Entomology Texas A. & M. College.

11:30—Foulbrood Eradication, W. E. Jackson, Assistant Entomologist.

Afternoon Session—

1:30 to 5:30—Fifteen-minute report from each Inspector present of the local work.

Tuesday, Feb. 12, 1918—Forenoon Session—

9:00—Letters of Authorization and Vouchers, F. B. Paddock.

9:30—Reports, W. E. Jackson.

10:00—Laws and Regulations, F. B. Paddock.

10:30—Proposed Work, W. E. Jackson.

11:00—Instruction Book, F. B. Paddock.

Afternoon Session—

1:00—Inspection of College and Experiment Station.

2:30—Foulbrood, N. G. LeGear.

3:00—Sacbrood, T. W. Burleson.

3:30—Inspectors as Advisors, J. B. King.

4:00—County Educational Work, T. A. Bowden.

Evening Session—

Smoker.

It is to the energy of Mr. F. B. Paddock, State Entomologist, that the success of the meeting is largely due. He has prepared to wage an effective battle of eradication this season against our common enemy.

This meeting was held to educate the inspectors as to their duties and powers and to more fully co-relate their work. Strict regulations are to be enforced covering the shipment of honey out of infected areas. Certificates of inspection, showing freedom from disease must accompany bills of lading covering the tender of honey to railway agents for shipment. Texas is fortunate in having a foulbrood law "with teeth in it," and great progress is looked forward to this season. Active work is being done in 28 counties.

E. G. LeSTOURGEON.

Inspectors in attendance at the Texas Conference

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.**

### Queens

1. What is a laying queen?
2. Can I use a virgin queen in a hive with success and will the bees swarm, and also work good the first summer by using a virgin queen?
3. What is an untested queen, and how do you know when you buy a queen whether it is a virgin, tested or untested?
4. Would I have as good a chance to introduce a virgin or an untested queen to a colony of bees as to pay $2 for a tested queen?
5. Will a virgin queen lay?

SOUTH DAKOTA.

ANSWERS.—1. As soon as a queen begins to lay eggs she is called a laying queen for the rest of her life, even though she may stop laying for weeks or months.

2. You would make a failure with a virgin, if she should remain a virgin. But after mating she might do excellent work, and would be very unlikely to swarm in her first summer.

3. An untested queen is a laying queen that has been laying so short a time that none of her progeny has yet emerged, and she becomes a tested queen after the markings of her progeny show that she has purely mated. After sufficient experience you can tell with more or less certainty by her looks whether a queen is a virgin or a laying queen; but I wouldn't undertake to tell a beginner how to do it. No one can tell by the looks of a laying queen whether she is tested or untested.

4. A virgin is harder to introduce than a laying queen; but an untested queen is introduced as easily as a tested one.

5. A virgin that fails to mate generally disappears; but sometimes she lays, producing nothing but drones.

### Buying Bees

This winter I have lost a colony of three-band Italian bees. These bees were killed through starvation. The bees were thick on the combs and some of them were inside the combs. I want to know if I could buy a colony or a couple of pounds of bees and a queen. Could I use these combs for foundation? ILLINOIS.

Answer.—You can use those combs with decided advantage over using foundation. You would hardly buy a colony to put on the combs, for in the ordinary acceptation of the term, when you buy a colony you buy the combs with it. But if you should buy a colony with its combs, you could use the combs to good advantage in making increase. It would be good policy to buy a 2-pound package of bees with a queen, putting them on your combs. Brush the combs as clean as you can, and put at one side those that are the dirtiest, or that have dead bees in them. If you dry the combs well you may be able to shake out some of the dead bees by holding the comb flat and shaking hard.

### Wax Moths in Section Honey

I am bothered with the wax moths hatching out and damaging my section honey after it is cased up ready for the market. What can I do to avoid this trouble? I am satisfied the moth has already deposited the eggs while on the hive. ARKANSAS.

Answer.—You are right that the eggs are already on the sections when taken from the hive. You can fumigate the sections with sulphur a week or two after taking from the hive, and then again two weeks later, and carbon disulfide is still better. The moths are worse with blacks than with Italians.

### Chaff Covering

Would a chaff tray of six inches depth be either beneficial or detrimental left on hive all summer, run either for extracted or comb-honey production? NEW YORK

Answer.—It might do some good on cool nights; also on hot days, if hives are exposed to the sun.

### Hives in Open

Is the best place for hives in the open, or in a protecting shed with open window, giving free access to outer air? NEW YORK.

Answer.—A protecting shed may be a good thing in winter, but when you come to work with the bees in summer you will find it a good deal handier not to be hampered with a shed. The ideal thing is to have hives sitting under the shade of trees.

### Requeening With Ripe Queen-Cell

1. Is it practical to requeen without dequeening by placing a ripe queen cell in the brood chamber in such a way that it will not be torn down?

2. Would the queen be apt to tear it down if it were placed between the frames, say at the back end of the hive?

3. Does a virgin queen usually overcome a laying queen?

4. Do you think this is a good way to requeen with the least amount of work?

5. Is the L frame and the Hoffman frame the same thing and size? ILLINOIS.

Answers.—1. Sometimes it would succeed; oftener it would not.

2. It would generally be torn down, either by the queen or the workers, or both.

3. That depends. If the virgin has been reared by the bees themselves, she will be victor; although quite often the old queen and the young one will for a time live peaceably together. But if you attempt to get a virgin into a hive with a laying queen, the virgin is practically certain to be killed, unless the laying queen be so old or poor that the bees are anxious to supersede her.

4. It's hardly a good plan, for if the cell is not torn down its presence will likely make the bees swarm, which you are not likely to want.

5 The Hoffman frame is a Langstroth frame with shoulders that make it self-spacing.

### Mold in Hives

1. What causes the mold on the bottom-board and lower parts of the frames? They were packed on all sides with straw and leaves to a thickness of about six inches.

2. What damage will it do to the bees or comb?

3. How can it be remedied? KANSAS.

Answers.—1. It is likely a combination of dampness and lack of ventilation.

2. That depends on the extent of the trouble. If severe, it may cause diarrhoea. The bees can clean up the combs, even if very bad.

3. Have colonies strong, and give sufficient upward ventilation.

### Sulphur for Foulbrood

By putting supers and empty combs in a light room and burning sulphur, will this kill foulbrood? NEW YORK.

Answer.—No, not the least little bit.

### Foulbrood

1. Is the sunken surface of brood-cells always a sure sign that either American or European foulbrood is present, or do you sometimes find the surface of cells sunken when no foulbrood is present?

2. In what way does European foulbrood differ from pickled-brood? How can I tell the difference?

3. Do the bees build the comb in sections heavier in cold weather than when it is warmer? MINNESOTA.

Answers.—1. I think there may be sometimes sunken cells without foulbrood, as also foulbrood without sunken cells.

2. In European foulbrood the diseased larvae have a decidedly yellowish tinge.

3. I don't know; but I hardly think so.

### Miscellaneous

1. I made some Doolittle queen-cell cups, and while dipping I fastened to it a pin in a horizontal position so I can easily transfer them on any comb. What do you think of this idea?

2. If I put those cells on the combs in the brood-chamber before swarming will the queen lay eggs in them?

3. What kind of hives do you use?

4. What kind of a double-walled hive do you think is best for ordinary use?

5. Do you know where I can get the old style beveled edge hives?

6. Does any water run in a straight edged hive when it rains? If so how does it do any harm?

7. What is the best way to clip a queen for one that is too nervous and excited to hold them in the fingers?

8. Does it do the bees any harm to handle them often?

9. When is the best time to move bees a short distance of about 50 feet? ILLINOIS.

Answers.—1. It may work all right

2. I don't know; I think she might sometimes, but generally not.

3. Eight-frame dovetailed. Ten-frame would probably be better.

4 Probably there isn't much difference; and for ordinary use I should not want double walls.

5. No; their inventor has discarded them, and you would hardly like them if you had them.

6. A very little may go through, but I never could see that it did any harm.

7. I don't know whether it is longer in use; but at one time there was advertised a device, a sort of tube in which you put a queen, and through openings she would thrust a wing so you could clip it.

8 It may not do any great harm; but at least it hinders them in their work, so that they should not be handled without some good reason.

9. A good time is early in spring when they have hardly begun to fly yet.

### Bees Flying When There is Snow

1. Should bees be confined to the hive on warm winter days when there is snow on the ground?

2. Would the same number of bees be lost if there wasn't any snow on the ground? CONNECTICUT.

Answers.—1. Something depends on circumstances. If they had a flight only a week or so before a bright day comes with snow on the ground, then it is well to shade the entrances so they will not fly out and fall into the snow. If they have not had a flight for a considerable time, then let them fly, but throw hay, straw, or something on the ground near the hives so they will not sink in the soft snow never to rise again It will help if you do nothing more than to tramp down the snow to make it hard.

2. No, there are bees that drop into the snow and perish that would not die if they did not leave the hive.

### Wintering

Is it necessary to put bees in the cellar or use winter packing cases in this locality? Could bees be wintered or stored in a shed as well as in the cellar? WISCONSIN.

Answer.—In Wisconsin it is quite necessary to winter bees in cellar, or else pack them if left outdoors They may be wintered in an old-fashioned shed, with packing about them; but the majority prefer to have them in a good cellar.

### Mailing Queens a Distance

Would queens travel safely to Ireland from the States? IRELAND.

Answer.—There is so much delay and uncertainty nowadays that you would run some risk in having queens shipped at present.

### Cellar Wintering

I built two new bee-cellars last fall. They seem to be quite damp, some mold on combs and drops of water on cover; temperature from 44 to 46 degrees. Do you think I ought to warm them up some way? I was in one cellar today; they seem to be quiet. I put away 300 colonies and am quite anxious about them. This is a hard winter up here; 38 below zero this morning, Feb. 1. MICHIGAN.

Answer.—The condition of your cellars would indicate that they do not have enough ventilation. It might be a good plan to warm up the cellar a little, provided the temperature is not raised high enough to excite the bees. I believe that if you can open the doors or windows when the temperature outside is neither too high nor too low, it may help considerably. Mould on the combs is very disagreeable, but not necessarily injurious to the bees. But it would be much better if the air was dry. If the weather is cold, try using a coal oil stove, giving enough ventilation to keep the excess of heat from disturbing the bees. When they are quiet, it is a good sign.

I will gladly answer any other question, if in my power. We want to help our subscribers as much as we can.—Editor.

### Increasing

In Pellett's Productive Beekeeping, pages 111-112, a method of making rapid increase by you (Miller) is described. As I understand it you used nine colonies, but made the increase directly each nine days from "Hive No. 2." Ac-

cording to this you would have the following number of hives each period: June 12, 10; June 19, 12; June 26, 14, etc. In other words, an increase of only two each nine days. Now, I have to depend mostly on white clover, and often have no fall flow. White clover is not productive with us, as a rule, after August 1. So I am unable to see where I could by that method even get half the 56 colonies mentioned. Will you please explain? I will look for the answer in the American Bee Journal.
WEST VIRGINIA.

Answer.—You will find the story of this increase more fully told in "Fifty Years Among the Bees." There is nothing remarkable about it, seeing the season was excellent, except that it was done with nine very weak colonies. "May 29 there were only 41 combs containing any brood in the nine colonies, counting each comb with brood, even if the patch of brood were no larger than a silver dollar. I doubt if the nine averaged any more than three and a half good frames of brood each."

You are in error in assumin that there was "an increase of only two each nine days." Here are the figures of the actual increase made on each date:

June 12, 1; June 21, 2; June 30, 5; July 8, 4; July 18, 2; July 27, 7; August 4, 8; August 14, 14; August 23, 4.

That was making increase later than you think practicable in your locality, but if the nine colonies had been fairly strong the number probably could have been reached by August 1, and the total number made considerably larger by August 23.

### Italianizing an Apiary

I have about 40 colonies of bees; they are all strong and in good shape. Last year I bought two golden Italian queens and am very much pleased with the results obtained from them. Now, I have heard it said, and I have read, that if a man has an Italian queen or two that in a couple of years or so he can Italianize his whole apiary. I would like very much to know how you do it. How would it do to go to the hive you want to Italianize, destroy the queen, then go to the hive containing the Italian queen and take a frame of brood containing one or more queen-cells and put it in the hive you want to Italianize? By so doing would they raise a young Italian queen? Or, how would it do, by destroying the queen and queen-cells as before stated, to cut out a queen-cell from the Italian hive and insert it carefully in the center of a frame in the hive to be Italianized? Would the bees take care of it and would it hatch out and become a queen for the hive? Will either of these plans work?
MICHIGAN.

Answer.—Either of the ways you mention should be entirely successful. But don't be too hopeful about having all your colonies pure Italian all at once. So long as other colonies with the wrong kind of bees are within a mile or so, you may expect more or less of your young queens to meet drones from them, and it may take years to be entirely free from black blood.

### Poisoned with Propolis

I get poisoned with propolis. My eyes swell shut. I have fever, and in a few days I feel like I had been sunburned. My skin peels off a dozen times or more from one poisoning. I even get poisoned from dust from scraping honey boxes. I sometimes get so sick it affects my heart. Can you tell me of a remedy?
MISSOURI.

Answer.—I think it is more or less a common thing that beekeepers are troubled with the dust of propolis when scraping sections, although a good many of them may not know it. Their eyes smart and their nose troubles them, but they think it is only a bad cold. There are, however, a few to whom it is a real affliction, as it is in your case. I am very sorry to say I know of no remedy, but am glad to put the matter before beekeepers thus publicly, and if any one knows of a remedy, or even a palliative, he will be doing a public benefit if he will tell us about it.

### Bees in Pound Packages

1. Which would you advise, buying bees in one-pound or two-pound packages?

2. At about what date should they arrive in this locality (northeast Missouri)?

3. I have some frames of honey about 5 pounds each. If I order two-pound package of bees delivered about May 1, how many frames would it take to keep them till white clover blooms?

4. Would it be unlawful for me to build hives for my own use the same style as the Dadant hive, but with the same size body as the Tri-State hive?
MISSOURI.

Answers.—1. In most cases the result will be more satisfactory with the larger package.

2. You will probably do well if you get them by the middle of May.

3. Two will likely be plenty.

4. No.

### Foulbrood—Preventing Burr-Combs

1. At the Pennsylvania State Convention, the method of shaking on full sheets with a drawn comb in the center, as a foulbrood treatment, was strongly advanced. The purpose of the comb is to catch the diseased honey; it is removed after 3 days. Do you consider this treatment effective?

2. I have never heard of anyone recommending the shellacking of brood-frames for the prevention of burr-combs and excessive propolis. All my Hoffman frames have the top and sides of the upper bars, as well as the narrow sides of the end bars, filled with a coat of shellac or wood filler, and a second coat of good varnish, after being sandpapered. Is it considered too much work for the results obtainable?
PENNSYLVANIA.

Answers.—1. I should expect good results from the plan, hardly so much because the drawn comb would catch the honey as because it would tend to keep the bees from absconding, which they too often do when nothing but foundation is present.

2. I should not consider the work too much if it would secure permanently the result desired. I should be a little afraid the treatment would lose its effect after two or three years, but possibly not.

### Rim on Inner Hive Cover

Why the ⅜-in. rim on inner hive-covers? It does not keep them from warping; in fact the Root people put out some with channel irons and no rim. The air space formed by this shallow rim is not enough to do much good, as a heat preventer, and some makers are now leaving off the side strips, so as to get a draft through under the cover. If, as I read, this cover is to be turned over in packing for winter, so as to form a clustering space above the frames, would not a half-inch, three-fourths-inch or even an inch rim be more desirable? Would it not be a good idea to have at least as much space above the frames, with, of course, an abundance of packing above the brood-chamber
IOWA.

Answer.—I haven't bought any hives for some time, so I'm not sure just what you're talking about, but I suspect the idea is to have a ⅜ in. space over the top-bars, not to allow a place to cluster, but merely to allow the bees to pass readily from one comb to another.

I don't know, but I'm skeptical about an inch space being better. Indeed, I'm a little skeptical about bees clustering above top-bars, and I don't believe they care for any space above their combs. I know they often cluster below their combs, but I think more than room enough above top-bars to allow free passage from one side to the other would be merely giving so much empty space for the bees to keep warm. However, if you say you *know* they like to cluster above, I'm ready to change my opinion.

### Nucleus—Division-Board—Demaree Plan

1. In starting a colony from a nucleus by putting frames, bees and queen into a new hive and moving to a new stand do you always imprison them for a few days to prevent them from returning to their former stand?

2. After the entrance to a nucleus hive has been stuffed with leaves to prevent the bees from returning to their former stand, why do you stir up the bees by pounding on the hive just before liberating them?

3. When adding frames of brood with adhering bees to these nuclei, do not many of the bees return to the parent hive?

4. Will bees ever carry eggs or young larvæ from one frame to another to put into a queen-cell, or do they always build the queen-cell around the larva right where the egg was deposited by the queen? It seems to me that I have read somewhere of a larva being carried above an excluder.

5. Last year, for lack of frames, I had a 10-frame hive with five frames of bees and foundation on one side of the hive, the other side being entirely empty. Although the foundation in these frames was not yet all drawn out, the bees began building comb in the empty space. Now, as I have never owned or used such a thing, I would like to ask if a division-board placed beside the frames would have prevented this?

6. In this vicinity we depend almost entirely upon white and alsike clover for surplus. Soft maple and dandelion are abundant for building up colonies in early spring, but the small amount of buckwheat and late bloom are usually of minor value for surplus.

Now, I expect to try the Demaree plan next year and I would like to get your advice as to my best way to make increase. I desire to make but slight increase (about 25 per cent), and as there will probably be abundance of bee and little for them to do in the latter part of the season, I wish to inquire if it will be best for me—

1st. To divide those large Demaree colonies at the end of the clover harvest, depending on the new colonies to gather their own stores, or,

2nd. Let each large colony work as a unit until about September 15 and then divide, also dividing stores with the new colonies and in either case giving a laying queen to the new colony, or,

3rd. Will it be better to select colonies in May from which to make increase by the nucleus plan, not expecting these colonies to store any surplus?
MICHIGAN.

Answers.—1. That depends. If the bees have been queenless for a few days, and a goodly number is taken, more than enough to cover the combs, then it is not necessary to imprison. Indeed, if the bees are not queenless, but are taken with their own queen, and enough bees taken to allow for the return of part, then imprisonment is not necessary.

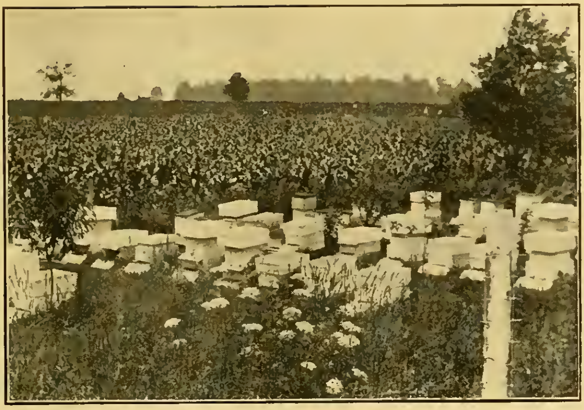
2. I don't, as a rule. If the entrance has leaves crammed into it tightly, it should be two or three days before the first bees will squeeze through, and nothing more will be needed to make them stay; but at any time when it is uncertain whether bees will stay, it will do at least a little toward making them mark their location to pound on the hive before freeing them.

3. Likely, unless the bees added are queenless. It is always possible, however, to have the bees queenless.

4. Generally an egg or larva will be used without moving, and for a long time I could not believe that bees would carry eggs or larvæ from one cell to another; but I have had cases of queen-cells over an excluder where I could find no explanation but to say the bees had carried up through the excluder the material from which to rear queens.

5. You had just what you should have expected. Bees cluster in something like a sphere, and as part of the sphere fell outside the frames of foundation they would build comb there rather than on the foundation outside the sphere. Very likely the dummy would have confined them to the foundation, and yet if the force of bees was sufficient they might have clustered and built outside the dummy.

6. I'm inclined to think I would prefer your third plan, using a few colonies for the increase.



THIS APIARY OF 62 COLONIES BELONGS TO PROF. J. H. DIEBEL, HIGH SCHOOL PRINCIPAL AT COLUMBUS, OHIO. THE BEES ARE AT HICKSVILLE, OHIO, 150 MILES FROM COLUMBUS.

### Catching Swarms

Enclosed I send you a picture of my beeyard. There are 62 colonies—the view is through the center. I started with 32 in the spring and I intended to keep them from swarming to a considerable extent. I didn't exactly set any definite limit on the number of new swarms I intended to have. They were nearly all large swarms by the first of June. The season being late, no new swarms appeared until July 1. Just when I was sure that I had the swarming impulse well in hand (with plenty of supers, etc.) the fun began. Before it was over every colony in the yard had swarmed. I am well located and in spite of this and the unfavorable season, I got 1,500 sections of fine honey. I have much dandelion, 100 acres of raspberry within easy reach, alsike clover, white clover and basswood. The grove that you see in the background of the picture is nearly all basswood. White sweet clover is becoming abundant.

This is all very fine, but what worries me is that this pesky swarming is going to cover the whole plantation with bee hives. I am revolving in my head all sorts of fancy notions as to how I am going to steal a march on those bees next summer. I have a notion to try out a decoy to catch swarms. Would a device shaped like a cone, covered with wire cloth and hung in a tree attract a swarm? The device could be so arranged that it could be handled like a Manum catcher.

I have noticed that a dark spot formed by a cluster of leaves or branches will attract a swarm. Obviously the flying bees take it for a forming cluster. Two or three of these decoys could be placed in different parts of the yard. They could be suspended in such a manner as to make the manipulation very easy. Has this idea been tried? I am sure you will laugh at this foolish notion. But I want to assure you that this notion is not a bit more foolish than a goodly number of other notions I have originated. I must not forget to say that I spent a very pleasant vacation with these insects and I am already waiting for the time to come when I will return to them. You understand, I think, that these bees are at Hicksville, 150 miles from Columbus.

OHIO.

ANSWER.—If I understand correctly, what you are after is something that will offer an inducement to a swarm to settle where it may be easily secured. Yes, something of that kind has been tried, and with considerable success. Years ago a good deal was said about such things. By some a bunch of dried mullein tops was suspended on the top of a pole set in a convenient place. Others used strings of dead bees. Your cone-shaped device hung in a tree might work all right, and I suspect it might work better away from any tree, in full view. A piece of old black comb in it might be an improvement. A swarm is more likely to settle where some previous swarm has settled. At one time my assistant had a craze for keeping empty hives in or near the apiary, as decoys, each hive containing one or more old combs. Occasionally she caught a swarm, generally a wanderer from away.

Thanks for the fine picture.

### Comb Foundation—Diarrhoea

1. I enclose a sample of comb-foundation which I bought last summer and did not use, as it doesn't look yellow in color like the rest I've used. I don't think the bees will work on it. What do you say?

2. One of my colonies was left weak last fall. I fed them sealed white clover honey. Upon examining them later I found everything dark brown all over the frames and combs. The bees are all alive. What disease is this? How is it cured?

MINNESOTA.

ANSWERS.—1. I should call it a sample of excellent foundation. The color of foundation varies according to the wax from which it is made. It may be lighter than your sample and it may be very much darker, and the bees will probably like this as well as the brighter yellow.

2. The trouble is probably diarrhoea, and the cure is to allow the bees a flight as soon as practicable.

### Transferring from a Tree

I found a swarm of bees this winter located in a large dead tree stub in the woods. They are in the lower part of the tree; do you think it is possible for me to transfer this swarm to a hive? What method would you advise, and at what time of the year would you think it best to do it?

NEW YORK.

ANSWER.—A good time to operate is when fruit blossoms open. Cut down the tree; cut it off above and below where the bees are, and split open the trunk, then you can cut out the combs of brood and tie them into the frames, upon which the bees can settle after you have put them in the hive, when you can take the bees home. Better not take them home till all bees are in the hives in the evening.

### Increase

I am an amateur in the bee business and want to increase. Which method do you recommend, natural swarming or dividing?

CALIFORNIA.

ANSWER.—One who is well up in the business will do better to take the matter of increase into his own hands. One with very little experience may do well to let the bees take their own course. Not entirely, however; for it is seldom desirable to allow each colony to swarm more than once, and it is a rather simple matter for the most inexperienced to prevent all after-swarming. When a swarm is hived, put the swarm on the old stand and set the old hive close up to it, facing the same way. A week later move the old hive to a new place 10 feet or more away. That's all. There is little chance that there will be any second swarm.

### Diseased Combs—Shallow Frames Versus Full Depth

1. Would it be safe to use combs on which bees have died of foulbrood for extracted honey above a queen excluder?

2. Which do you prefer for extracted honey, shallow or full depth frames?

VIRGINIA.

ANSWERS.—1. So far as the honey is concerned, it would be all right. But if combs affected with American foulbrood were used there would be danger to the bees in the brood-chamber below. With European foulbrood there would not be much danger. Yet if your apiary is entirely free from both kinds of foulbrood I should advise you to take no chances whatever.

2. Best results are probably obtained with the shallow combs, although many prefer to use the deeper combs on account of the convenience of using the same kind in any story.

"Practical Queen-Rearing"

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointer in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.

(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

### Queenless in March

What is the best thing to do when one finds early in March that a colony of his bees is queenless? It is too early at this time of the year to purchase queens, and if a queen is reared from young brood there would be no drones with which to mate her. Is there any remedy, or should the colony be united to one having a queen?

ALABAMA.

ANSWER.—The best thing is to unite the bees with another colony, or with other colonies. If you have a very weak colony with a good queen, unite with that. Otherwise unite with two or more of the weaker colonies.

### Bees Cleaning Combs

If I place hives filled with combs from colonies that have died, under strong colonies, so that the bees will clean them out, will it do to leave them there until needed to hive a swarm or for some other purpose? Will the queen go down and lay in them after they are cleaned?

A SUBSCRIBER.

ANSWER.—Yes, it will be all right to leave the combs under the colony until time for surplus supers to be given. The queen will not go down to lay in them unless she really needs the room, in which case you can do nothing better than to let her lay in them.

### Natural or Shaken Swarm

Will the plan given on page 280 of the American Bee Journal, fo August, 1916, answer equally well for either natural or shaken swarms? I want to do away with the necessity of having on hand a lot of extra hives and frames that would be necessary were I to follow the plan of placing the old hive alongside of the new one for about 3 weeks, and shaking the young bees off the frames occasionally as they emerge.

PENNSYLVANIA.

ANSWER.—Yes, it will be all right to shake the bees off all but one comb, taking away that one comb a week later, giving the brood taken away to weaker colonies. But I hardly see how that will make any fewer frames necessary, although it will take less hives.

## Classified Department

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

### BEES AND QUEENS

NORTHERN BRED ITALIAN QUEENS—Ready May 1, each, $1; six, $5.
Allen R. Simmons, Claverack, N. Y.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
Garden City Apiaries,
San Jose, Calif.

FOR SALE—At the yard, 100 hives of bees; your pick $6; the run $5. Empty hives, etc., less than cost.
D. E. Lohmmedieu,
Colo, Story Co., Iowa.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
H. G. Dunn,
The Willows, San Jose, Calif.

WARRANTED QUEENS from one of Dr. Miller's breeders, $1 each; $10 per doz. Package bees, without queen, $3 for 2-lb. package; $1.75 for 1 lb package; 25 packages or more, 10c less; add price of queen. Full colonies in 10-frame hives, $10 each, in 8-frame hives, $9, in Danzenbaker hives $8. Tested queens in all colonies.
Geo. A. Hummer & Sons, Prairie Point, Miss.

QUEENS BY RETURN MAIL—Choice tested queens, reared last fall and wintered in 4-frame nuclei, $1.25; $14 per doz. Queens of this season's rearing, untested, $1; $9 per doz. We breed the 3-band Italians only and our strain is known for gentleness and honey gathering qualities. Every queen guaranteed. Never a case of foulbrood in our apiaries.
J. W. K. Shaw & Co., Loreauville, La.

A NICE 1-pound package Italian bees with queen, $2.25; 2-pound package with queen, $3.25, shipped c. o. d.
W. H. Moses,
Lane City, Texas.

FOR SALE—The largest and best apiary in Western Colorado, for September delivery; also small dairy and fruit ranch. Good building. Cause for selling, asthma; have moved twice in last 20 years.
J. G. Puett,
Collbran, Colo.

OUR select bred mated queens winter well.
Honeymoon Apiaries, Yakima, Wash.

FOR SALE—First-class Italian queens and bees in season. Send for price list. Free from disease; safe arrival and satisfaction guaranteed. M. Bates, Greenville, Ala., R. 4.

BREEDING QUEENS—I have a few extra choice Italian breeders for spring delivery. Price $5 each.
J. E. Wing, 155 Schiele Ave., San Jose, Calif.

OUR BRIGHT ITALIAN QUEENS will be ready to ship after April 16. Untested, 75c each, $8 per doz., or $65 per 100. Safe arrival guaranteed.
Tillery Bros., Georgiana, Ala., Route 5.

FOR SALE—Fine Italian queens at 90c each, $9 per doz. Ready April 15. Safe arrival guaranteed.
T. J. Talley, Route 3, Greenville, Ala.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDEN Italian Queens, untested queens, $1 each; six, $4.25; $8.25 per doz., 50, $32.50; $60 per 100. Tested queen, $1.50; one frame nucleus, no queen, $1.25; 2-frame, $2.25; 3-frame, $3; breeders, $5 and $10.
L. J. Dunn, 54 Broadway Ave., San Jose, Cal.

WANTED—10 to 100 swarms of bees not over 50 miles from Bellevue, Ohio.
N. B. Querin, Route No. 7.

THE best Italian stock, three-bands and goldens at $2.50 per lb., with untested queen; 2 pounds, with queen, $4. Rosedale Apiary.
J. B. Marshall & Son, Big Bend, La.

BOTH Italians and hybrid bees at $2.50 per pound with untested queen; 2 pounds, with queen, at $4.
Mrs. T. H. Carruth, Big Bend, La.

FOR SALE—Golden Italian bees; 1-lb. pkg., with queen, $2.50; 2-lb. pkg., with queen, $4; 2-frame nuclei, with queen, $3.50.
L. J. Bond, Big Bend, La.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln, Ill.

GOLDEN ITALIAN QUEENS—About May 1; good honey gatherers; no foulbrood; select tested, $1.50; tested, $1.25; untested 85c, 6 $4.75, 12 $9. No nuclei or bees for sale.
D. T. Gaster, Rt. 2, Randleman, N. C.

THE Sinking Creek Queen Introducing Cage; 5 years' test of absolute success; indispensable for introduction of valuable queens; also several queens can be kept in one hive in perfect harmony; small and works on the brood comb; especially adapted for queen breeders. Price 60c per doz., 2 doz. for $1; post paid. Sinking Creek Apiaries, Gimlet, Ky.

SWARTS GOLDEN QUEENS produce golden bees of the highest qualities; satisfaction guaranteed. Mated $1, 6 for $5; tested $2.
D. L. Swartz, Lancaster, O., Rt. 2.

FINEST ITALIAN QUEENS, June 1 to November, $1 each; 6 for $5. My circular gives safe methods; free. J. W. Romberger,
3113 Locust St., St. Joseph, Mo.

ABOUT APRIL 15 I will again be ready to fill orders for untested queens of my fine strain of leather-colored Italians. I breed no other race. Choice tested and breeding queens at all times. Satisfaction guaranteed. Circular free. Untested queens $1 each, $9 doz.; choice tested $1.60 each; fine breeders $5 each.
C. S. Engle, Beeville, Bee Co., Texas.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed.
O. D. Rivers,
Route 4, Honey Grove, Texas.

HAVE YOU, Mr. Producer, been getting all for your honey that you could expect? If the price you have been getting has been less than the largest price you have read about, let the Domestic Beekeeper, Northstar, Mich., help you dispose of your 1918 crop. Investigate.

FOR SALE—One to fifty colonies of Italian bees in ten-frame hives. Bees and hives are in A 1 shape; no disease. Price $10 per colony.
John C. Bull,
1013 Calumet Ave., Valparaiso, Ind.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

**Get More Honey from Each Colony**

¶ Don't be satisfied with your usual crop. Get a bigger one this year.

¶ There is often enuf honey lost in an apiary, thru lack of enuf supplies at the right time, to pay the entire expense of running that apiary for a whole year.

¶ Don't lose honey that way. Get your supplies now, before it is too late and be sure to order

MADE RIGHT
BEE SUPPLIES

*Quality ... Service*

**Kretchmer Mfg. Co.**

COUNCIL BLUFFS
IOWA

IF YOU HAVEN'T ONE OF OUR GREEN CATALOGS, WRITE FOR ONE

FOR SALE—8-frame colonies, extra fine strain Italian bees, with queens, $7 each; all free from disease, with stores for winter; standard full depth self-spacing Hoffman frames, all straight combs in new one-story single-wall hives f. o. b. here.
Wilmer Clarke,
Earlville, Mad. Co., N. Y.

PURE 3-banded Italian queens, untested but warranted, $1; 6, $5; tested, $1.50; 6, $8. Last year's tested queens, clipped, $1. Good fat nuclei and full colonies in abundance. Write for price list.
J. F. Diemer,
Liberty, Mo.

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolians. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo Leon Co., Tex.

THREE-Banded and Golden Italian Queens and pound packages in spring, from the Sunny Southland.
Grant Anderson,
Rio Hondo, Texas.

THREE-BANDED Italians; untested queens in April and May, one, $1; 6, $5; 12, $9. Tested, $1.50 each One-pound packages of bees, $1.50 each; two-pound packages, $2.50 each. Add price of queens if wanted. If you want as many as 50 packages write for prices and discounts on early orders. Safe arrival and satisfaction guaranteed. No disease, and all queens purely mated.
Cotton Belt Apiaries, Box 83, Roxton, Texas.

FOR SALE—One and two-pound packages bees with Italian queens; April and May.
E. Eggeman, Allenville, Ala.

GRAY CAUCASIANS—Gray Carniolans, 3-banded Italians; gentle, hardy, prolific; cap beautifully white; are "Mendelian" bred to superior drones, from choicest mothers; results are obvious. Apiaries widely separated. Quinn's queens of quality have no superiors. "There's a reason."
Chas W. Quinn,
609 W. 17th Ave., Houston Heights, Texas.

SELECT bred, mated queens, $1 each, prepaid. Bred from the selected stock of eleven yards totaling over 1,500 colonies of bees run for commercial honey production. Only one grade of queens—no culls sold, $10 per dozen, prepaid.
Honeymoon Apiaries,
402 N. Fifth Ave., Yakima, Wash.

## HONEY AND BEESWAX

CASH paid at your bank for carlots and less, of comb and extracted honey.
Wesley Foster, Boulder, Colo.

FOR SALE—Two barrels amber honey, boneset, smartweed and goldenrod; 104 gallons in lot, and best offer takes it.
J. F. Archdekin, Bordelonville, La.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered.
The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa. Monroe. Wis

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago. Ill

WANTED—Beeswax at all times in any quantity, for cash or in exchange for supplies.
Dadant & Sons. Hamilton. Ill.

## SUPPLIES

FOR SALE—200 wire queen excluders, 45c each.
D. G. Little, Hartley, Iowa.

CLOSING OUT—Entire stock of bee supplies; send bill of goods needed for my prices; no catalogue. A few No. 2 4x5 sections, $4 per 1,000.
H. S. Duby, St. Anne, Ill.

FOR SALE—Dadant foundation, light brood, but oversize, 16⅝x8¼ in., to better fit L. or H. frames. Why buy worker foundation that leaves ⅜-in. at bottom for drone comb, or that is not fastened? Discount for cash, or can use honey
E. H. Bruner,
3836 No. Kostner Ave., Chicago.

A BARGAIN—200 used T-supers for 10-frame hives, for 4¼ in, 2-beeway sections, with tins, at 25c; also 10,000 sections for same, or separately, at a discount. Cash, or will exchange for honey
E. H. Bruner,
3836 No. Kostner Ave., Chicago.

QUICK CASH on arrival for your honey, if such as I can use. Send sample say how much and price. Can furnish containers if wanted.
E. H. Bruner,
3836 No. Kostner Ave., Chicago.

FOR SALE—Pure maple syrup, in one-gallon cans, $2.50; six gallons or more at $14.
The M. C. Silsbee Company, Avoca, N. Y.

SWARMING CONTROLLED—No additional fixtures needed; unnecessary to clip queens; done solely by manipulation. Successfully used eight years. For particulars, address
Trimble & Thompson, Wapello, Iowa.

ARE YOU keeping well posted on the crop condition and price prospects for your 1918 crop of honey? If not, you should! The Domestic Beekeeper, Northstar, Mich., will keep you posted on crop condition and price prospects as recommended by the Committee of the Chicago Northwestern Association. This committee, through the Domestic Beekeeper, saved producers a half million dollars on their 1917 crop of honey and expects to do even better on their 1918 crop. Are you one who is not taking advantage of an opportunity never before offered to secure all your crop of honey is worth? This opportunity is worth investigating.

FOR SALE—Second-hand hives; Danzenbaker 8-10-frame hives and frames; 2 empty bodies, 9 bottoms; 11 covers; 10 supers for sec. 4x5x1 3-8; and fences and sec. holders; sell the lot for $19.50, free on board Utica, Ill., R. I. & P. R. R.. Half price of new; no foulbrood.
A. Mottaz, Utica, Ill.

CONSERVATION PASTE—Costs less than 1c per pint; will stick your label on anything any time; easily and quickly made; no boiling; simple ingredients; ready for use in 30 seconds. Send 25c for formula. Money refunded if not satisfactory.
Sunnyside Apiaries, Fromberg, Mont.

NORTHWESTERN BEEKEEPERS — Save time and freight charges by ordering supplies near home. Best standard goods, factory prices. Send list of wants, and I will quote lowest prices. Catalog upon request.
George E. Webster, Valley View Farm Apiary,
Sioux Falls, S. Dak.

FOR SALE—One thousand beehives with supers; three-fourth dovetailed, balance halved together at corners and nailed both ways. Hoffman frames throughout. We will guarantee them to be sound and free from disease. Will sell all or any part at about half what new hives will cost. Apply to The Hyde Bee Co.,
Floresville, Texas.

*"Griggs Saves You Freight"*

**TOLEDO, O.**

Say, Mr. Bee Man, have you placed that order for supplies yet? If not, remember we not only save you freight, but time and money as well.

**DELAYS ARE DANGEROUS**

But don't delay, as Railway Embargoes are all the rage now, and you may be caught.

**LARGE NEW STOCK ON HAND**

All ready to ship out, direct from ROOT'S, who know how to make good goods.

**HONEY AND BEESWAX**

Always wanted; cash or in trade. Send for FREE CATALOG.

**S. J. GRIGGS & COMPANY**

**Department No. 24** **Toledo, Ohio**

*"Griggs Saves You Freight"*

**BEEKEEPERS**

**KEEP IN TOUCH WITH**

**Leutzinger & Lane**

**236-238 Drumm St.**

**SAN FRANCISCO, CALIF.**

**Buyers of EXTRACTED and COMB HONEY**

**Shippers and Exporters of HONEY**

**[ The WORLD is Our Market ]**

# Attention Eastern Beekeepers

WE HAVE A COMPLETE STOCK OF

## Lewis Beeware and Dadant Foundation

Five and ten-lb. pails, also five-gallon cans and glass jars.

Queens, three-banded and golden Italian, ready for delivery now. Untested, $1 each; six for $5.50; twelve for $10. Tested, $2; six for $10.

Safe delivery guaranteed, dead queens being replaced upon their return.

**THE DEROY TAYLOR CO.**
**Newark, New York**

# Queens That Will Please

Over 20 Years of Careful Selecting and Breeding

They are bred from **Imported** stock, the very best for honey gathering and gentleness. They are not given to swarming and are highly resistant to diseases. Give me your order, and after you have given my queens a fair trial, if you are not satisfied in every way that they are as good as any you have ever used, just return them and I will send you queens to take their place or return your money with any postage you have paid out on returning the queens.

**Prices April 1 to June 15**

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Selected untested | 1.15 | 6.00 | 10.00 |
| Tested | 1.50 | 8.00 | 17.00 |
| Selected tested | 2.00 | 11.00 | 20.00 |

**Guarantee.**—You take no risk in buying my queens, for I guarantee every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction.

**L. L. FOREHAND, Ft. Deposit, Ala.**

# BEE SUPPLIES

ORDER EARLY---DON'T DELAY

Owing to freight embargoes, you may not get your supplies when needed. We have a good stock of hives, Hoffman Frames and other supplies, and can make prompt shipment.

We also render wax from old comb and cappings. Our charge is only five cents per pound for the wax rendered.

*Give us a trial.*
*Catalog free for the asking.*

**The M. C. Silsbee Company**
**AVOCA, NEW YORK**

## WANTED

WANTED—Two-frame extractor.
K. L. Carlock, Baylis, Ill.

WANTED—May, October and November, 1917, numbers of American Bee Journal and January, 1918, that are in good condition; will pay 10c each. Please mail carefully so the wrapper covers the entire journal.
American Bee Journal.

WANTED—A good honey location to start a line of apiaries; will give a suitable reward for the best reliable information.
D. E. Lohmmedien, Colo, Iowa.

WANTED—A two-frame extractor
H. Leffel, Lakewood, Wis.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—Bees; 1 to 100 colonies.
C. O. Smith 5446 Cornell Ave., Chicago.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Second-hand honey extractors; tell me what you have and price; also wax presses. W. D. Soper, Jackson, Mich.
Dealer in all kinds of Bee Supplies.

## SITUATIONS

WANTED—A strong, inexperienced young woman wants work in apiary, preferably in northwest or Colorado. Can begin June 13
Mildred P. Sturdevant, Gooding, Idaho.

WANTED—Extracting outfit in the south or southwest in good location; give full particulars in first letter. A. Carder,
Constance, Ky.

WANTED—Two bee men for comb honey for 1918. State age, wages and experience.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—Man to work with bees, season 1918; state age, experience and wages on basis of board furnished by us. Address
The Rocky Mountain Bee Co., Billings, Mont.

WOULD YOU like to receive four or five hundred dollar per hundred more for your 1918 crop of honey than the big buyers will offer you? The Domestic Beekeeper, which will cost you but $1 per year, will show you how. This is no guesswork; we have done this very thing with hundreds of our subscribers on their 1917 crop, and are willing to do the same by others. You will make your greatest 1918 mistake if you do not, every one of you investigate the work the Domestic Beekeeper is doing for its subscribers, along the line of buying and selling for them.

WANTED — Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

## FOR SALE

FOR SALE 200 10-frame new supers complete with beeway sections, at a very low figure. Write. L. W. Mundhenke,
East Dubuque, Ill.

FOR SALE—Full-depth 10-frame bodies filled with full-drawn combs, $2 each. Ideal supers, 5 11-16 inches deep, 10-frame full drawn combs, $1.25 each. The Hyde Bee Company,
Floresville, Tex.

FOR SALE—100 comb honey supers, 8 and 10-frame size, painted; in use one year; take the 4¼x4¼x1⅞ scalloped sections, with sections and drawn comb from full sheets foundation, 50c and 35c apiece, cash. Furnish affidavit that they are sound and free from disease. Chester E. Keister, Clarno, Wis.

FOR SALE—Sixty moving screens for ten-frame hives; new and unused. In lots of ten or more, 20 cents each.
Frank C. Pellett, Atlantic, Iowa.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

FOR SALE—Having sold my fruit farm, I offer for sale my entire apiary, consisting of 45 colonies in 8 and 10-frame hives. I examined these colonies this spring and find them free of disease, all in good condition, and each has a laying queen.

Fifty 8 and 10-frame hives; frames are full of comb, built mostly on wired foundation; all straight.

One hundred and seventy-five supers with section-holders; all hives and supers are painted.

One 2-frame Cowan extractor.

The following is new stuff for the present season's use:

Ten 8-frame hives in flat.

Twenty pounds extra thin foundation.

Ten pounds medium brood foundation.

Thirty-five hundred No. 1 sections, size 4¼x4¼x1⅞.

Everything in first-class shape. In order to close out will accept $400 here for it. No offer for part of it considered.

A W. Gray, Eldora, Iowa.

FOR SALE—54 stands of bees, all in fine condition. Reason for selling, blindness.

A. Gibson, Coleridge, Nebr.

FOR SALE—Four-frame reversible honey extractors and Superior wax presses. Full description on application. Address,

Geo. Stinebring, Shreve, Ohio.

FOR SALE—6 10-frame beehives and combs; 2 8-frame beehives and combs; with supers, sections and appliances. Apply

Chas. Nye, Mill Valley, Calif.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling.

W. M. Penrod, Ronneby, Minn.

LAST FALL Mr. Smith asked us our advice on when best to sell his crop of 15,000 lbs. of clover extracted honey. We answered him by advising that he hold until May, unless he got a good round price for it before. He could at that time have taken something like 12c per pound for it. He held it. At our Michigan State Convention last December, he again asked what we thought about the future price of honey. He could then get 17c per pound for it. We advised him to hold. He sold the entire crop the other day on board the cars for 18½c per pound. Mr. Smith's case is only one in hundreds of cases where producers have done well by following the advice of the Domestic Beekeeper. We want every beekeeper who has honey to sell to send in his dollar for the Domestic Beekeeper during 1918. We have the back numbers, so can begin your subscription with the January number, thus making your volume complete. Do it today, and at the end of the year get your dollar back if you think you have not received its worth.

# Crop Report and Market Conditions

For our May number we asked the following questions of our reporters:

1. What per cent of loss has there been?
2. In what condition are the bees?
3. Condition of honey plants and prospects?
4. Any offers by buyers on the 1918 crop?
5. What, in your opinion, should extracted honey be worth when the crop begins to be harvested, based on conditions now? Price of comb?

### PER CENT OF LOSS

The average loss this year has probably been as high as a year ago, mostly owing to the fact that many colonies went into winter with a short amount of stores, which might have been sufficient for an ordinary winter, but not enough for a protracted cold such as we had. Losses for different sections average about as follows: Maine 20 per cent, Vermont 10 per cent, New York 20 to 50 per cent, Kentucky 30 per cent. Balance of the southeast 5 to 12 per cent, Ohio and Indiana 20 to 30 per cent, Michigan, Wisconsin and Minnesota 12 to 20 per cent, Illinois 15 per cent, Iowa 10 to 30 per cent, Kansas and west Central States 10 per cent; Texas from 25 to 40 per cent, New Mexico and Arizona 3 to 8 per cent, Colorado and Idaho 3 to 8 per cent, Wyoming and Montana 15 per cent, Washington and Oregon 2 to 6 per cent, California 8 to 15 per cent.

### CONDITION OF BEES

Bees are probably in a normal condition or above, the country over. Many colonies came out of winter in very poor shape, but have been building up fast, so that they are now in normal condition. Idaho and Washington are very much encouraged, the whole Southwest reports excellent condition of bees. In most other locations reports are that bees are from fair to very strong, with very few reports of bees in poor condtion.

### HONEY PLANT PROSPECTS

There is much difference in plant conditions compared with a year ago. A few spotted localities report a short crop in prospect, but most localities are looking for a much better flow than a year ago if the weather is favorable from now on.

Georgia and the balance of the South report excellent prospects, except that in Louisiana the spring crop has failed. Michigan and the northern States are possibly a little less than normal, while Illinois, Indiana and other central States are possibly a little above normal. In Iowa the clover is spotted, being completely burned out in some localities, prospects being fair in others.

Some prospects in Texas are poor, but most are good, and so much better than a year ago that everyone is encouraged. More rain is needed, however.

Idaho and Washington report extra fine prospects, while the whole of the Rocky Mountain region is up to normal. California is generally good, with poor reports from restricted areas. Some report extra fine prospects. In practically all sections the early reports indicate that there are more chances of a crop than a year ago.

### OFFERS ON HONEY

Most reporters state that there are many inquiries for honey with but few definite offers. A Georgia producer has been offered 15 cents for his extracted honey in large lots; one in Florida has been offered 16 cents. In Texas the offers have ranged from 13 to 18 cents for extracted honey, depending on the grade. Here there have been inquiries from the British and French governments.

In Colorado and New Mexico buyers have offered to contract, but at no definite price.

One party in California has contracted his whole crop in advance at 15 cents per pound. Many offers are being circulated at 10 and 12 cents, depending on the grade, but the well-informed beekeeper is paying no attention to these. There seems to be no definite price fixed by any one buyer, many offering what they think the beekeeper will take. We have reports of at least a dozen offers made at prices ranging as low as 15 cents up to as high as 17½ cents f. o. b. shipping station for white extracted.

### PRICES ASKED

No reporter desired to sell his honey at less than 15 cents for extracted, no matter what the grade, while the lowest desired for comb was $4 per case for No. 1.

In the east and central States beekeepers nearer the market, 20 cents is the average price wanted for white extracted, though very few ventured an idea on prices of comb.

One reporter in Wyoming says he is going to get 20 cents for extracted and 25 cents for comb f. o. b. his station, and one in California is going to hold for 25 cents, owing, he says, to a short crop there.

A bulk of reporters judge that there should be little decline in prices over what buyers were paying for the tail end of the 1917 crop, which would be in the neighborhood of 17, 18 and 19 cents f. o. b. shipping point for white extracted honey.

### CONCLUSIONS

The crop should be larger than a year ago.

On the other hand, the demand should be better.

There is one factor which may enter into a determination of the price and that is the facilities for exporting honey. Being a highly concentrated food product and being desired by the governments of our allies as well as by individual firms within these countries, we believe that honey will be given space if at all procurable. Then, too, by fall, the shipping problem will very likely be considerably relieved.

We see no reason for pessimism among beekeepers in disposing of their 1918 crop, and if we were to change our minimum price suggested last month, 15 cents, we would be inclined to increase it rather than lower it, with a minimum on No. 1 comb honey of $4.50 per case.

There will be need of all the honey we can produce—no one should spare effort to make the crop as large as possible.

**Statement of the Ownership, Management, Circulation, Etc.,** required by the Act of Congress of August 24, 1912, of **American Bee Journal,** published monthly at Hamilton, Illinois, for April, 1918:

STATE OF ILLINOIS, } ss.
COUNTY OF HANCOCK, }

Before me, a Notary Public in, and for the State and county aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Managing Editor of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, American Bee Journal, Hamilton, Ill.
Editor, C. P. Dadant, Hamilton, Ill.
Managing Editor, M. G. Dadant, Hamilton, Ill.
Business Manager, V. M. Dadant, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, or other securities, are: None.

(Signed) M. G. DADANT.

Sworn to and subscribed before me this 4th day of April, 1918.

H. M. CUERDEN.

My commission expires August 25, 1921.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item,** a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping,** or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**
**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## QUINN'S QUEENS OF QUALITY

Have no superiors "There's a reason." Are Mendelian bred, good qualities accentuated. Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease resistant, white comb builders—they deliver the goods.

ITALIANS, 3-banded, line bred, pedigreed; need no boosting; they speak for themselves. Price on application at either apiary.

**CHAS. W. QUINN**

Rt. 1, Box 319
Houston, Texas

Box 275
Ft. Myers, Florida

## Notice to Bee-Keepers

We are booking orders for combless packages, for April, May and June delivery, at the following prices:

1-lb. package, $1.80 each; twenty-five or more, $1.70.
2-lb. package, $2.90 each; twenty-five or more, $2.90.
3-lb. package, $3.90 each; twenty-five or more, $3.80.

If queens are wanted, add 75c each to above prices. We will only have tested and breeding queens to offer until June 1, as we will need all our queens for the package trade.

Price of tested queens, $1.50 each.
Breeding queens, $3 each.

The high cost of all material, and labor, compels us to raise the price on our packages. We guarantee safe arrival to your express office. Our bees are free from all disease and are of the best Italian strain.

P. S.—We do not use a frame of brood or any comb at all in our packages, as has been stated by others; this is false.

**References**
**Apalachicola State Bank and Bay City Packing Co., Apalachicola, Fla.**

If you send postoffice money order, have same drawn on Apalachicola, Fla.

**MARCHANT BROS., Sumatra, Fla.**

## Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

PRICES OF QUEENS

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**No Nuclei or Bees by Pound.**

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

## THE CANADIAN HORTICULTURIST AND BEEKEEPER

**THE ONLY BEE PUBLICATION IN CANADA**

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.

Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive and practical monthly magazine.

Well illustrated and up-to-date. Subscription price postpaid.
Canada, $1.00 a year. United States, $1.25 a year. Foreign, $1.50 a year.
Sample copy sent free on request.

**The Horticultural Publishing Co., Limited, Peterboro, Ont., Can.**

# The New Way in Farming

## Multiplies Farm Production and Profits

### PARTIAL LIST OF CONTRIBUTORS

Only a few of the 100 Farming Authorities who wrote FARM KNOWLEDGE for you:

C. F CURTISS, one of the biggest live stock men in the country and probably the best judge of heavy horses in America.

W. S. CORSA, owner of "Carnot." one of the finest Percheron horses in the world; a practical farmer with a large model farm at Whitehall, Illinois.

C. B. HUTCHISON, one of the owners of Waterloo Jersey Farm, at Waterloo, Iowa. A practical breeder and dairyman of many years' experience.

F. C. MINKLER, of New Jersey and J M. EVVARO, of Iowa, two big national authorities on cattle and swine breeding.

C. H. ECKLES, of the University of Missouri, an outstanding American authority on Dairy Breeding.

E. H. FARRINGTON, one of the most prominent authorities in America on Agricultural Chemistry.

C. S. PLUMB, of Ohio, a national authority on producing beef.

ALVA AGEE, famous Secretary of Agriculture of New Jersey.

DEAN W. N. JARDINE, of Kansas, a leading authority in the United States on Dry Farming.

REESE V. HICKS, formerly President of the American Poultry Association.

Amazing discoveries have been made in farming which have completely revolutionized production and profits. The New Way has turned failure land into profit land, has made the difference between small profits and big profits, has solved difficult problems of soil fertility, drainage, plowing, planting—in fact, practically every farming operation, including live stock, dairy, marketing methods and the farm home. You cannot afford to farm the old way when you can secure, for less than seven cents a day, the help of over 100 of America's New Way farmers and farming authorities—each man a specialist in his chosen branch of agriculture. The net result of the experience of these men has been compiled and made instantly available to every farmer through Sears, Roebuck and Company's library of farming practice—

## FARM KNOWLEDGE

This splendid work comprises 4 volumes—2000 pages—3000 illustrations. Every chapter written in simple language, easy to understand. The ideas given are so practical that they can be applied at once. Glance at the partial list of contributors—think of having the constant help, on your farm, of over 100 such men: Glance at the partial list of contents—think of having at your finger tips *over 2000 pages of such facts* completely illustrated! Why farm alone when you can have such help?

## Write Postal or Mail Coupon For This Book

Send in your name TODAY on the coupon below or just use a post card. We want *every farmer in the United States* to have a copy of this new illustrated booklet about better farming methods and bigger farming profits. It tells about the thousands of secrets of great farming successes presented in FARM KNOWLEDGE—shows how this *new helping hand* enables YOU to apply these secrets to your own farm so you can *make more money* and stop losses.

You cannot afford to mis the complete description of this work. Send today for the free FARM KNOWLEDGE booklet which goes into detail, gives list of contributors, table of contents, sample pages and shows many illustrations from the four volumes. Mail coupon or postal *now*.. Please ask for FARM KNOWLEDGE Book No. 63A58.

## Sears, Roebuck and Co.
## Chicago

### Special to
## BEE KEEPERS

Here is just a hint of the nuggets of gold found in FARM KNOWLEDGE of particular interest to beekeepers:

Getting Started With Bees.
When to Buy Combless Bees.
How to Combat Weather Conditions.
Proper Arrangement of Hives.
Races and Types of Bees.
Seasonal Care of the Apiary.
Seasonal Operations of Bees.
Artificial Increase of Colonies.
Feeding of Bees.
Bee Diseases and Enemies.
Wintering Bees.
How to Make Money on the By-products of the Apiary.
Important Honey Plants and Flowers.
Marketing Honey.
Value of Strong Colonies.
Reasons Why Extracted Honey Can be Produced Cheaper Than Comb Honey.
How to Rear Queens.
How to hive Swarms.
When to put on "Supers."
How to Avoid Excessive After-swarms.
Proper Cutting Away of the Queen Cell.

Space permits giving only a brief list of the other contents of each volume. See the set for yourself at our risk.

**The Beekeeping Industry**

VOL. 1. Practical Horse Breeding, Care of the Dairy Herd and Beef Herd, How to Raise Hogs, Treatent of Diseases of Farm Animals.

VOL. 2. Soils, Tillage, Drainage, Plant Enemies and How to Fight Them, How to Grow Crops, Truck Growing, Fruit Growing.

VOL. 3. Horse-drawn Work Outfits, Farm Machinery, Farm Buildings, Motorcycles and Automobiles, Electricity on the Farm.

VOL. 4. System in Farming, The Farm Woman, Boys and Girls on the Farm.

*Sears, Roebuck and Co., Chicago.*

Send me your free booklet, illustrating and describing "Farm Knowledge." This request obligates me in no way.

Name ..........................................
Postoffice ....................................
R. F. D. Box ..................................
No. ........ No. ........ State ................
Street and No. ................................

Or, if easier, drop a postcard for booklet No. 63A58.

## QUEENS — QUEENS — QUEENS

**Three Banded and Golden Italians; the best of either**

They are hustlers; gentle to handle; cap their honey white; are very resistant to European foulbrood. We have added Mr. B. M. Carraway's queen-rearing outfit to ours and have with us one of his assistants, so can fill all orders promptly. Had fine success shipping bees last season in our newly devised cage and method of feeding, a number of shipments going as far as Idaho and Wyoming. Mr. R. B. Mills, Corinth, N. Y., wrote, "Bees arrived in fine shape, not 50 dead bees to the cage, 2-lb. size." Satisfaction and safe delivery guaranteed. Get your order in early. Reference: The Guaranty State Bank, Robstown, Texas, or the City National Bank, Corpus Christi, Texas.

| | 1 | 6 | 12 | 50 | 100 |
|---|---|---|---|---|---|
| Untested Queens | $1.15 | $ 6.35 | $11.50 | $43.70 | $ 85.00 |
| Select Tested | 2.50 | 11.50 | 20.70 | 74.75 | 138.00 |
| Bees, one-pound package | 1.75 | 9.80 | 18.40 | 74.75 | 138.00 |
| Bees, two-pound package | 2.90 | 17.25 | 33.95 | 132.25 | 240.00 |

Add price of Queens wanted to packages.

Satisfaction and safe delivery guaranteed within six days of Calallen. Circular free.

**NUECES COUNTY APIARIES, Calallen, Texas**

## BEEKEEPERS' SUPPLIES

**Lewis' Bee Ware** Has helped the Western Beekeepers to be Successful — **Why Not You?**

## WESTERN HONEY PRODUCERS

**SIOUX CITY IOWA**

**WHOLESALE AND RETAIL DISTRIBUTORS**

We Want Your Surplus Honey and Beeswax

## THE LAST TIME

You Bought

## QUEENS

did you get what you were looking for? Were they thrifty, hardy, gentle and beautiful? Were they the Imported Queens Americanized? Were they guaranteed to reach you in good condition, to be purely mated and to give perfect satisfaction? These are the qualities that have enabled

### Forehand's Three-Bands

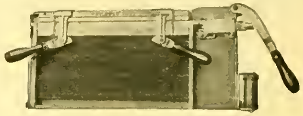
THE THRIFTY KIND

to stand over a quarter of a century of actual test. That has brought them up to a standard **surpassed by none, but superior to many.** Deposit your order NOW for June delivery.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 1.25 | 7.00 | 11.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Write for Circular.

**W. J. FOREHAND & SONS**
Fort Deposit, Alabama



PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

**Three-Banded Italian Queens and Bees**

I am now booking orders for spring delivery of my best superior breeders. They are gentle, hustlers; winter well, not inclined to swarm. There has never been any disease in my apiaries. Untested, 75c; 6, $4; 12, $7.50; 100, $60. Select untested, 90c; 6, $5.25; 12, $10; 100, $75. Tested, $1.25; 6, $7.50; 12, $14. Select tested, $2 each. One-pound package without queen, $1.25; 12, $14. Two-pound package without queen, $2.25; 12, $26. When queens are wanted with pound packages, add queens at prices quoted above. Five per cent discount on all orders received before February 1. I guarantee safe arrival and perfect satisfaction. S. D. CHEATHAM,
Route No. 4, Greenville, Ala.

## TYPEWRITER SENSATION

**3⁰⁰ a** A Month Buys a Visible Writing **L. C. Smith**

Model No. 5 perfect machines only of standard size with keyboard of standard universal arrangement—has Backspacer—Tabulator—two color ribbon—Ball Bearing construction—every operating convenience. **Five Days Free Trial.** Fully guaranteed. Catalog and special price sent free.

**HARRY A. SMITH, 314 -- 231 North Wells Street, CHICAGO, ILL**

## BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and quality. Write for catalog.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

**EARLY ORDER DISCOUNTS WILL**

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

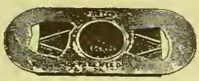
I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

## CHAS. MONDENG

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

## PORTER BEE ESCAPE SAVES HONEY TIME MONEY



**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

Write for Price List and Booklet descriptive of
**HIGH GRADE**
**Italian Queens**
And Bees by the Pound
**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

**ORDER YOUR**

## BEE SUPPLIES EARLY

**We want you to have our catalogue. Send for one.**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

## QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

**Archdekin's Fine Italian Queens and Pound Packages**

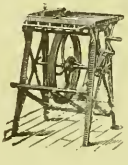
Untested queens, 75c each, 6 for $4.25; doz., $8.00; select tested, $1.25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

## BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# Printing *for* Beekeepers

Let us print some Letterheads, Envelopes, Statements or Billheads for you. Or perhaps you need Honey-cartons, Labels, Advertising Booklets, or circulars. We have the best facilities for doing printing for beekeepers because of our large assortment of cuts and illustrations.

We can furnish almost any cut you want in Bees, Queens, Beehives, etc. Let us send you our sample book of cuts from which you may select your illustrations; also our book of honey-labels, with prices.

## SPECIAL DISCOUNT

of from 15 to 25 per cent will be given to beekeepers on all orders for printed matter received during May and June. Get your order in ahead of the rush.

*SEND ALL ORDERS TO*

**The A. I. ROOT COMPANY, Medina, O.**

---

# NOW'S REPAIRING TIME

CYPRESS LASTS PRACTICALLY FOREVER

## Don't Replace Rotten Wood with Wood that Will Rot

CYPRESS "THE WOOD ETERNAL"

We have a word to suggest to you practical men of affairs—you who build and maintain Bee Farms. The matter of annual repairs is no trifling consideration. Unless you use a lumber that possesses real INVESTMENT VALUE, these repair bills will eat great holes in the net income of your property. Cypress is so well certified—its character for "staying put" is so thoroughly established—that you are about certain to use it in the early spring repair jobs. Practically all live lumber retailers carry Cypress stocks, so you need have no trouble about getting exactly what you want. If your local dealer has no Cypress in his yard, write us and we will tell you where to get it.

## AUTHENTIC INFORMATION = FREE

Write our "All Round Helps" Department if you are at all perplexed about what is best to do in the matter of lumber, for original work or for repairing. There are 41 volumes in the Cypress Pocket Library, covering all sorts of uses for the "Wood Eternal," and they are free to you. Vol. 1 is a reprint of Bulletin No. 95, Forest Service, Department of Agriculture—a certificate of the U. S. Government. Better get this booklet. Vol. 36 tells how to make easy a dozen hard jobs in Carpentry. Each of the 41 books is free. Vol. 1 contains a list of titles of these books. Start with Vol. 1; it's free to you. Why not write right now?

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA. — 1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

# AMERICAN BEE JOURNAL

JUNE, 1918

"Honeydale," the Southernmost Apiary in Texas

**Have you received our new catalogue?**

**We offer you even better service than ever before at our new location**

**COME IN AND SEE US**

**Write for our 1918 Bee Catalogue now**

# Big Money? — Yes — Read How

If your banker said to you, "Mr. Brown, buy that piece of land next to you at $100 per acre; it will be worth $2,000 per acre this coming summer," would you buy it today, or wait—well, until later on? We are sure you would not delay one moment.

We offer you the same kind of buy—that is, make $20 on each $1 invested. Buy your sections and bee-supplies *now*, for the sections cost less than $1 per hundred, and next summer, when they are filled with honey, they will be worth $20—think of it, those same sections that you bought for $1. The same holds good on other supplies. ORDER NOW and tell your neighbors the same, or Mr. Railroad Embargo "will buy that piece of land next to you and you'll be left."

## OLD COMB

Ship your old comb and cappings to us for rendering. We charge you 5c per lb. for the wax rendered and pay you the highest market price.

## WAX AND HONEY

We always buy Comb and Extracted Honey, as well as Beeswax, so when you have the above to offer, write us and you will be well pleased.

## Four Reasons for Our Success

**Honesty**

**Quality**

### LEWIS'S BEEWARE

If you have used LEWIS'S BEEWARE you know the quality; if not, this is just the time to invest your money where the results are lasting.

*"Made Like Furniture."*

**Price**

**Service**

**DADANT'S famous Foundation**

**THE FRED W. MUTH CO.**
Pearl and Walnut Streets
CINCINNATI, OHIO

**"QUALITY COUNTS WITH US"**

**ROOT'S Smokers and Extractors**

# QUEENS

**Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 Years a Queen-breeder.**

| Before July 1.— | 1 | 6 | 12 |
|---|---|---|---|
| Select untested | $ 1.50 | $ 8.00 | $15.00 |
| Tested | 2.00 | 10.00 | 18.00 |
| Select tested | 2.50 | 14.00 | 25.00 |
| 2-Comb Nuclei | 4.00 | 22.00 | 42.00 |
| 3-Comb Nuclei | 6.00 | 33.00 | 60.00 |
| 8-frame Colony | 10.00 | 55.00 | |
| 10-frame Colony | 12.00 | 68.00 | |
| 1-lb. package bees | 3.00 | 16.00 | |
| 2-lb. package bees | 5.00 | 28.00 | |
| After July 1.— | | | |
| Select untested | $ 1.00 | $ 5.50 | $10.00 |
| Tested | 1.50 | 8.00 | 14.00 |
| Select tested | 2.00 | 10.00 | 18.00 |
| 2-Comb Nuclei | 3.50 | 18.00 | 35.00 |
| 3-Comb Nuclei | 4.50 | 25.00 | 45.00 |
| 8-frame Colony | 8.00 | 45.00 | |
| 10-frame Colony | 10.00 | 55.00 | |
| 1-lb. package bees | 2.50 | 14.00 | |
| 2-lb. packages bees | 4.50 | 25.00 | |

Breeders.—The cream selected from our entire stock of outyards; nothing better. These breeders, $5 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above prices on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference: Any large supply dealer or any bank having Dun's reference book.

**H. G. Quirin, Bellevue, Ohio.**

PATENTED

**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2.50, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calif.**

## MOTT'S NORTHERN-BRED ITALIAN QUEENS

that resist disease well. Those that resist disease must be hardy, prolific, and hustlers; they are gentle. Bees per pound. Plans on "How to Introduce Queens and Increase," 25 cents. List free. Untested $1 each.

**E. E. MOTT, Glenwood, Mich.**

## BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

**Bee Hives and Supplies of All Kinds**

Discount for early orders. Book on how to handle bees, 27c by mail Instructive catalog free.

**J. W. ROUSE, Mexico, Mo.**

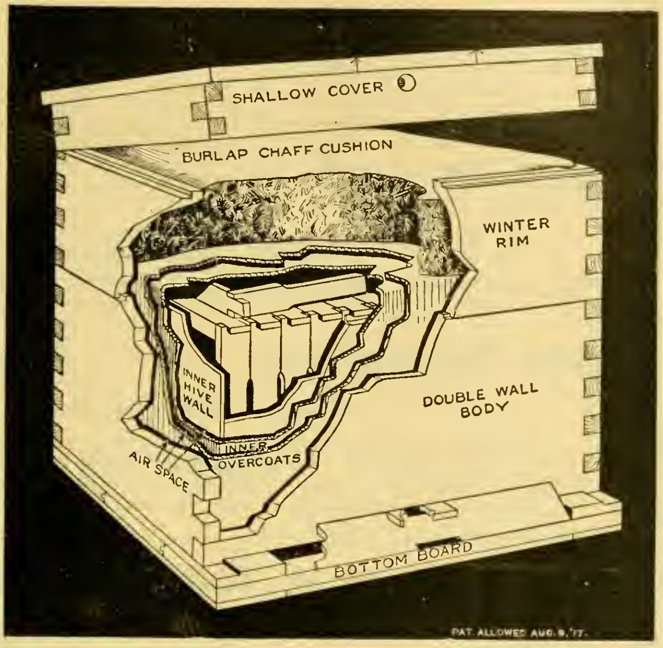
# WINTER PROBLEM SOLVED

BY

# Woodman's Improved Protection Hive

**"THE HIVE WITH AN INNER OVERCOAT"**

**100% Perfect Protection by Tests, Winters of 1916-17-18**



## The Inner Overcoat Did It

Without any special preparation we have wintered bees in these hives without loss. It is a joy to see the condition they are in, when compared with other styles of hives and wintering methods. The INNER OVERCOAT is telescoped down over the brood nest, in between the outer and inner hive walls, when preparing them for winter. In the spring it is removed and stored away in the K. D. flat. Not more than two minutes are required to pack or unpack a hive by this method. The INNER OVERCOAT affords more protection than several inches of ordinary packing material. Send for a special circular showing 10 large illustrations.

## Tin Honey Packages

Sixty-Pound Cans, in cases or in bulk, are being sold by us at prices considerably below general market prices. Send us an estimate of your requirements and let us quote prices.

Friction Top Pails, any size furnished, and in quantities as you may desire. Send us a list of your requirements and let us quote prices, as we can save you money. The tin can factories are rushed with orders, the tin plate situation is serious and transportation slow, so it will be wise to place your orders early.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

## "falcon"

### THINGS THAT ARE NECESSARY FOR YOUR APIARY

1. There must be a good location for the apiary.
2. Queens must be healthy and vigorous to put life into the hives. (Our queens are the best to be had and at reasonable prices.)
3. Your bees cannot do the work they should if you do not give them the best with which to work. If they have ample storage space, if they can work all the time without slack motion, they will be more contented and swarmless. To accomplish this, you must give them ample storage space, that is, the **RIGHT HIVES AND SUPPLIES. "falcon"**

Beekeepers should be placing their orders early for their early needs. He who waits is apt to suffer. These late beekeepers who want their goods in such a hurry at the last minute will lose some of the honey crop by not furnishing their bees with ample storing space. Railroad embargoes and rush business make deliveries slow.

Our famous **"falcon"** supplies will please you. Do not wait. Order now and strike while the iron is hot. **"falcon"** means the best, the standard of perfection. Red Catalog and Simplified Beekeeping upon request. Dealers everywhere.

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Good Beehives Come From**

## Bee Supplies Bee Supplies

### READ—ORDER EARLY

Owing to the congestion of freight and embargoes, we caution all beekeepers to get their order in early, otherwise you will suffer a great loss when you actually need goods, and you perhaps will be unable to get them for the above reasons. We have a large stock on hand, and can fill orders promptly, provided the railroads will accept freight.

*Send for our new catalog.*

**C. H. W. Weber & Company**
**2146 Central Ave. Cincinnati, Ohio**

## TENNESSEE-BRED QUEENS

**46 Years' Experience in Queen-Rearing**
**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested. | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested...... | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested.. | 3,00 | 16 50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

## We Offer

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**
**Glen Cove .. New York**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**A BOOK FOR BEGINNERS**

"First Lessons 'n Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# ?? WHY ??

Why is it that so many beekeepers prefer Dadant's Foundation? Why does it give such good satisfastion and why is it that when tested side by side with many other makes beekeepers have reported that "they take to Dadant' first."

**Do We Use Special Sheeting Machinery? No**

We use the Weed process of sheeting our beeswax into endless rolls, and it is the same process as used by nearly all manufacturers.

**Do We Use Special Foundation Mills? No**

We use the same kind of mills as are used by practically every foundation manufacturer in the world.

**Do We Use Special Beeswax? No**

We use beeswax such as is produced by beekeepers all over the United States.

## THEN WHY?

**BECAUSE**

Our beeswax is cleaned in such a way that all impurities are removed and all the fine qualities are retained.

**BECAUSE**

Sulphuric and other acids recommended and used by many manufacturers for cleaning beeswax are not used by us.

**BECAUSE**

Our motto is and always has been "EVERY SHEET PERFECT"—and we live up to it.

**BECAUSE**

For FORTY YEARS comb foundation has been, and still is, our *specialty*. When you get Dadant's Foundation you know that you are getting the best that money can buy. When you send your beeswax to us to be worked into foundation you know that you will get perfect work done. When you ship us your old combs and cappings to render you will get the maximum of wax they contain and, if desired, this wax will be worked into the finest quality of foundation made.

It is Up to You, therefore, to insist on Dadant's Foundation when you order your goods from your dealer. If you cannot get it from him, then order from us.

## DADANT & SONS

**HAMILTON, ILLINOIS**

**BEWARE**
WHERE YOU BUY YOUR
**BEEWARE**
WATERTOWN LEWIS U S A
MAKES THE FINEST

# Make This a Lewis Year

While you are starting the year's work, getting your bees ready for business, taking stock of supplies on hand and speculating as to what the season's outcome will be,

## Make This Resolution

That you will use LEWIS BEEWARE this year—because it means success insurance to you—because it means beehives and parts made of the best material by skilful workmen—because it means goods accurately and systematically packed—because it means sections made of bright lumber, highly polished, accurately dovetailed and scientifically grooved.

## Help Your Bees Sting the Kaiser

Order your supplies early, and order standard goods in order to save time and enable us, as manufacturers, to accomplish the most in the shortest possible time. Now, of all times, the Beekeeper should not put off until tomorrow what he can do today. You owe it to your country and to yourself to prepare at once for the gathering of the 1918 crop.

**LEWIS HIVES**
**ARE BUILT LIKE FURNITURE**

**LEWIS SECTIONS**
**THE KIND THAT DO NOT BREAK IN FOLDING**

You will find LEWIS BEEWARE almost at your own door—thirty distributing houses in the United States and foreign countries. If you have not one of our catalogs, send for copy at once.

**G. B. LEWIS COMPANY**
*Exclusive Manufacturers of Lewis Beeware*
**WATERTOWN, WISCONSIN, U. S. A.**

AMERICAN BEE JOURNAL

VOL. LVIII—NO. 6 HAMILTON, ILL., JUNE, 1918 MONTHLY, $1.00 A YEAR

# BEES IN THE LOWER RIO GRANDE VALLEY

## The First of a Series of Articles on Texas Beekeeping by Frank C. Pellett

TEXAS is a wonderful State with a great diversity of soil and climatic conditions, and with history and traditions peculiar to itself. The naturalist, the botanist, the historian, or the student of beekeeping or other agricultural specialty, can find within the State material for years of investigation. For a stranger to undertake to catalogue its resources, after a brief investigation of about two months, would be but to outline his own limitations, for Texas is too big to be contained within the grasp of any individual.

In order to appreciate the vast stretch of country called Texas, one must study the map of our country and note something of the variety of climate represented within its borders. Orange, Texas, is very nearly south of Des Moines, Iowa, while El Paso is farther west than Denver, Colo. The northern line of the State is close to southern Kansas, while Brownsville is a long distance south of San Diego, Calif. One might spend a lifetime in one section of Texas and have little idea of the State in general. The casual traveler who visits one corner of the State and comes back to tell you about Texas, may describe an entirely different country from that seen by the visitor to another part. One can describe almost any condition of soil or climate with which he is familiar in any part of the United States, and say with truth that it is like Texas for almost every condition of soil or climate of the rest of the country is to be found somewhere in Texas. The climate ranges from a winter temperature of some twenty degrees below zero in the panhandle, to an almost frostless condition in the Rio Grande valley. In east Texas, there is a heavy annual rainfall, with a consequent luxuriant vegetation, while in parts of west Texas one finds a desert flora and little rain. At one point we were told there had been no rain for eighteen months, and from the appearance of things we could readily believe it.

When it came to planning a trip to see typical conditions in every honey producing section of Texas in two months, numerous difficulties presented themselves. The job was too big for the time available. Prof. Paddock, the State Entomologist, outlined the trip from beginning to end, and it is doubtful whether it could have been planned better. Numerous well-known beekeepers were missed, and it was not possible to spend as much time as was desirable in some sections, but train schedules, distances to be traveled and opportunities in other places, all had to be considered.

Either W. E. Jackson, chief Bee Inspector, or Prof. Paddock, State Entomologist, accompanied the writer for the entire trip. E. G. LeStourgeon, manager of the Texas Honey Producers' Association, and H. B. Parks, of the Extension Department, also were with the party on part of the journey. At some points, three or four auto loads of local beekeepers would join us for a trip to the country, to visit the apiaries and study the honey plants. The informal discussions of bees and beekeeping, ranging from hive stands to honey flows, were most interesting, and the impromptu field meetings in the various apiaries were very enjoyable. Looking back on such a journey and remembering all the interesting places visited, the many new acquaintances made and the various in-

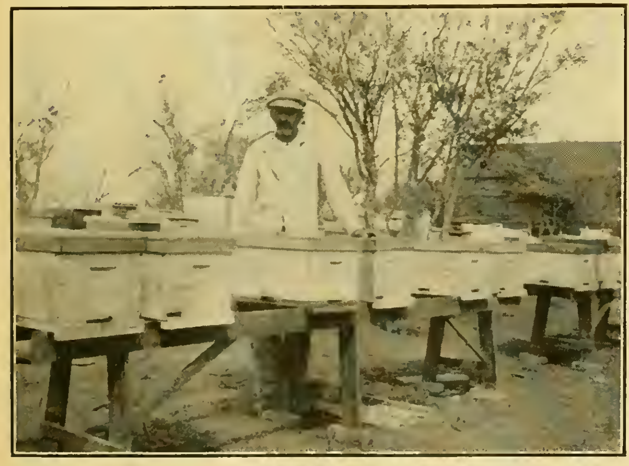


Fig. 1—Grant Anderson, of Rio Hondo. In many parts of the valley the bees must be lifted off the ground to guard against floods

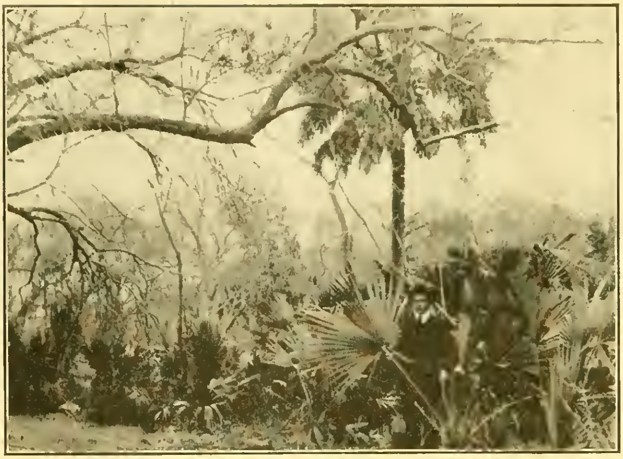


Fig. 2.—Semi-tropical vegetation near Brownsville, W. E. Jackson, chief bee inspector in the foreground

cidents along the way, it is hard to decide what is best to fill the limited space in the Journal that can be spared each month to tell about Texas beekeeping. Just to tell about the beekeepers themselves would be worth a volume, for in Texas, as elsewhere, there are many fine personalities among the beekeepers. As the limitation of time made it necessary to miss many interesting places and well known beekeepers, so the limitation of space makes it necessary to omit mention of many interesting incidents in this series of articles.

The Rio Grande valley is the southernmost section of the United States, except for the extreme tip of Florida. As far as beekeeping is concerned, we found conditions in the valley very different from those of any other section of Texas. In fact, Texas seems to be divided into about five natural divisions, as far as honey production is concerned. Each of these divisions has a flora and season peculiar to itself. Moving from one of these sections to another, one would have about as much to learn as though he came from a distant State. The Rio Grande valley has a light flow from one source or another, through most of the year. Several beekeepers told of having swarms as late as December, that gathered sufficient stores to winter successfully. The sources of honey are quite different from those of southwest Texas, where everything that grows has a thorn on it, and where the rainfall is extremely light. The southwest section will be treated in a separate article. North of San Antonio we find another natural division, where cotton becomes the principal source of surplus. The line is well marked, and south of there we were unable to find any beekeepers who reported cotton as important. The soil seems to determine the flow from this plant. The cotton belt will also be treated in a separate article. East Texas again is a different country entirely, and again demands a separate article. The time was too short to permit the party to visit the panhandle or the high plain country of northwest Texas, so that must be left for a later visit.

The Rio Grande valley, with its mild climate and fertile soil, only requires water in sufficient quantity to become the garden spot of Texas. A small portion of the valley is capable of irrigation, and some of the irrigated tracts show wonderful results. Land sharks take advantage of the attractions of the country, and prey upon the unsuspecting homeseeker from the north. These are mostly northern men with headquarters in some northern city, who live by taking advantage of their trusting neighbors. There are many opportunities in south Texas, but the poorest way in the world to find them is by joining a land-seekeers' excursion and buying from a company. A man who has played the game for eight years confessed to me that they never handle anything for less than a hundred dollars per acre margin. The man who dreams of a home in south Texas should visit the country and get his information from the residents. Few of the people living there will be inclined to deceive him. I heard the native Texans often deplore the way the northern buyer was being "skinned" by the northern land men, and saying that it was having a bad effect on the development of the country.

The valley is subject to extremes of wet and drought. One cannot depend upon the natural rainfall. While the records show an average annual rainfall that would indicate the possibility of profitable cropping, the distribution is uncertain. There may be heavy rains which flood the whole country, and then no rains for months. The country is very level and, sometimes, is flooded for many miles. It, accordingly, becomes necessary to keep the bees off the ground over most of the country. Only here and there is a natural rise high enough to be safe in time of extreme high water. (See Fig. 1.)

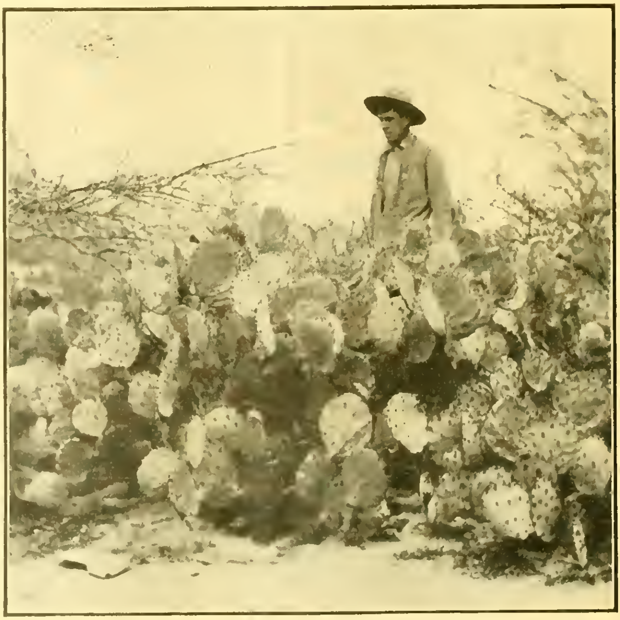


Fig. 3.—A. Lynn Stephenson and a clump of cactus in his pasture

The variety of flora is extremely interesting. Figure 2 shows a semi-tropical vegetation to be found near Brownsville. In the valley one finds both the desert flora and the valley flora, so that there is a great variety of bloom with something open for the bees every month in the year. The first beekeeper visited was A. Lynn Stephenson, proprietor of the Honeydale apiaries. Our cover picture shows his home apiary, which is probably the southernmost apiary in Texas cared for according to approved methods. There is a Mexican apiary a mile or so further south, but it is primitive in the extreme and will be described in another article.

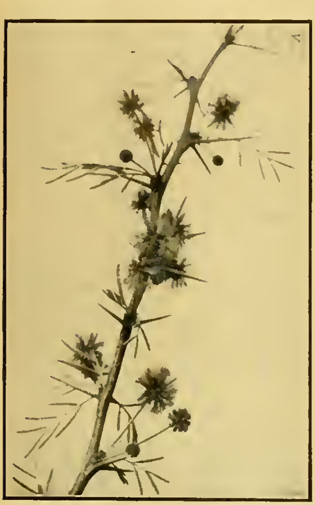


Fig. 4.—Tbe Huisache furnishes plenty of early pollen in the Rio Grande Valley

The Stephenson apiary is under Texas ebony trees. These are unlike anything to be found further north. The tree is evergreen and blooms several times during the year. It is a legume and bears beans like the locust pods. *(Siderocarpus flexicaulis.)* It is important for nectar.

Mr. McDonald, the county agent, and Mr. Stephenson both put their time and their cars at our disposal, so there was the finest chance, not only to see everything worth while, but to obtain information at first hand. It was February, and everything at home was in cold storage. Mr. Stephenson picked some fine strawberries and sent to our hotel at a time when coal was at a premium at home, and the thermometer registered 15 or 20 degrees below zero. At that time the bees were working freely on the hackberry and bringing in considerable nectar. The Huisache, pronounced "wesache," was also blooming and furnished pollen in abundance. Many of the plants in that section have Mexican names and the h has the sound of w. There was also a species of mint blooming which furnishes considerable honey some seasons.

Driving to Rio Hondo, we visited the apiaries of Grant Anderson, which are situated on the banks of the Arroyo, a salt water inlet from the Gulf of Mexico. Mr. Anderson uses a motor boat in traveling to and from his outyards, as described in the Journal some months ago. In even this short distance of about twenty miles, there is quite a difference in the flora. At Brownsville they have a number of plants not found at Rio Hondo, and some at the latter place not found at Brownsville. It certainly behooves a beekeeper to know his locality in Texas. At Mercedes there are a number of good beekeepers who gave us much information about the conditions peculiar to the valley. Claude Armstrong reported the largest average of surplus of which we heard in the valley. He reported that in an average season he had secured as much as 75 pounds per colony in outyards.

L. LaRue considers 40 to 50 pounds a very good yield in his locality. J. D. Kennedy considers 50 pounds as about an average for him. These were rather better reports than were found in other parts of the valley.

At first thought, one would expect this valley to offer a bonanza location for the honey producer, with its great variety of honey flora yielding something practically every month in the year. After looking the ground over, however, one discovers that the brood-rearing season is continued correspondingly, with the result that most of the honey gathered is consumed in brood rearing during the portion of the year when there is little surplus stored. In February, we found the bees in the Honeydale apiary were strong enough for shaking for increase, filling packages, or any other desired manipulation. They apparently averaged about as strong as would be the case in Iowa the middle of May to June 1. It seemed to be the consensus of opinion of the beekeepers in the valley, that the surplus would not average to exceed 25 pounds per colony for a series of years.

After visiting many beekeepeers and asking more questions than four small boys, we were impressed with the fact that the Rio Grande valley is the finest place in America for breeding bees, but rather a poor location (except in a few favored spots) for honey production. It would be possible to fill orders for queens or packages of bees a month to six weeks earlier than in Alabama or Mississippi. Then one could rear queens and mate them successfully for at least ten months in every year and, some years, for the entire twelve months. W. H. Laws, of Beeville, has established some queen yards in the valley, in order to be more independent of poor seasons, and also to add several weeks to the length of his queen-rearing period.

Cactus, commonly called prickly pear, or just "pear," is very common everywhere. It grows in clumps often as high as a man's head. It yields some honey and an abundance of pollen. Apparently, it is of much greater importance in some other sections than in the Rio Grande valley. Beside the cactus, the wild land is covered with a scrubby growth of thorny bushes, such as mesquite, catclaw, etc. It is difficult for one to walk about through the growth, for although it is not so very dense, the thorns catch in one's clothing and scratch one's flesh. After the first day that a stranger spends walking about in the chaparral, as the bush is often called, he spends most of the night following in scratching for chiggers and ticks. After a time he becomes somewhat immune to the attacks and also learns how to rid himself of the pests.

About 90 per cent of the country is still in the wild, and will be for a long time to come.

Fig. 5.—Rents are not high in the Mexican villages of South Texas. Because of the mild climate, the peons build houses much as the birds build nests, of such material as is ready at hand.

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
First Nat'l Bank Bldg., Hamilton, Ill.

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which shows that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C P. Dadant.)

# THE EDITOR'S VIEWPOINT

### Foulbrood Kill or Cure?

The appearance of friend F. Dundas Todd's article on pages 161-3 of our May issue, sustaining the method of applying fire for the destruction of foulbroody colonies is giving rise to vehement protests. A subscriber asks whether we approve of this method. We do not. Then why did we insert it? Because our friend of British Columbia has a very forcible way of disease might bring it again. If his isolated location, it may be safer to destroy the few cases of the disease found, although one might suggest that the same cause that brought the disease might bring it again. If he followed this method to a finish he would not do for a physician. If you had smallpox or some other contagious disease, he would probably bring you a revolver and a coffin and demand that you put an end to the danger of contagion by self-destruction.

We kept bees some 40 years without seeing a trace of foulbrood any where. Then all at once we found it pretty well disseminated in our apiaries. That was some 10 or 12 years ago. Had we followed friend Todd's method we would probably be out of the bee business by this time. Instead of that we cured the disease and in 1916 harvested a record crop of 125,000 pounds of honey.

If you are a careful beekeeper, reader, and find foulbrood among your bees, do not get frightened, but follow the directions for treatment given everywhere by inspectors and writers. But if you are careless and hesitate to follow instructions, better do as Mr. Todd suggests, build a big bonfire and destroy that which you do not have the courage to cure.

### Fabre and Parthenogenesis

An enquiring subscriber wants to know whether parthenogenesis can be accepted as an established fact, in spite of Fabre's condemnation of it, just because of the editor's experience with unfertilized queens. (See page 156 of the May number.)

We understand the implied criticism and would not expect a novice to accept our assertion without further proof. We might have given this in the May number. Here it is:

There are hundreds of queen breeders who have had experience with drone-laying workers. Many other beekeepers have also found them in queenless hives. Each of them is an evidence of parthenogenesis, for the drone-laying worker is an undeveloped female who has only rudiments of ovaries and an atrophied spermatheca. The fact that she can lay eggs that hatch, without her having been previously mated, is sufficient to affirm the Dzierzon theory. The word "Parthenogenesis" is composed from two Greek words meaning "reproduction from virgin." The drone-laying workers cannot be anything but virgins, since they are incapable of mating.

In the present number will be found an article from our learned Scotch, friend, John Anderson, M. A., which reproduces the assertions of two scientists that some African bees have laying workers whose eggs hatch as workers, queens or drones. Either those so-called workers are capable of mating, or they are not. If they are, then they are really fully developed females. If they are not, and cannot mate, then they give additional evidence of parthenogenesis, though with a variation in the result.

As no evidence of the production of anything but drones from the eggs of laying workers, in the European races, Black, Carniolan, Caucasian, Italian or Cyprian, has ever been given, we must needs be content with the Dzierzon theory, against which so many arguments of all shades have been used.

In a nutshell, this parthenogenesis may be described as follows: The queen and some workers may lay eggs that will hatch without previous mating.

### A Notable Work on Honey Plants

H. B. Parks, who has lately moved from Missouri to the Texas College of Agriculture, has completed the most thorough survey of the honey plants of Missouri as yet undertaken in any State. The work was done under direction of Dr. L. Haseman, the State Entomologist who has direct charge of all work in beekeeping in connection with the Missouri institution. Mr. Parks spent much time in field work in various parts of the State and has mapped the flora of Missouri relative to the occurrence of the various honey plants.

A study was made of 225 native and introduced species as to range of the plants, blooming dates and object of the bee visits, whether for honey, pollen or propolis.

There is great need that such work be done in every important honey-producing State, and Missouri is to be congratulated upon being one of the first to complete the survey of her nectar-bearing resources. It is to be hoped that the authorities of the university will see fit to publish the manuscript without delay, as students of similar problems in other States are hampered for lack of references. Its appearance will be awaited with interest.

### The Greiner Brothers

We take pleasure in giving to the readers of the American Bee Journal, on another page, pictures of two men who have been constant readers and contributors of the Journal for over 20 years. Messrs. Greiner are both methodical, careful and neat men. They have been successful and are always willing to explain their methods, which are the result of long years of practice. (Editor.)

# REMINISCENCES OF EARLY AND LATER DAYS

## Recollections of One of New York's Best Beekeepers Since Beginning With Bees

By G. C. Greiner

THE earliest recollections of my beekeeping activities date back to my schoolboy days, when a small lad 8 or 9 years old, in the early fifties. In the city of Bernburg, the capital of Anhalt, with about 15,000 inhabitants, I was by chance introduced to the joys and woes of my earthly existence.

In a small garden, back of a row of closely-built city blocks, grandfather kept in a roughly built shed, from 8 to 10, sometimes as many as a dozen colonies of bees. They were all in the customary straw skeps, the same as all beekeepers used at that time. The usual way and the only possible chance of gathering up the season's surplus crop, was by tipping the skep to one side, driving the bees by means of the blowpipe as much as possible from one of the side combs and cutting this with a long hook-shaped knife from its fastenings. The part I generally played in this operation was to hold the pan while grandfather filled it with what we would call at the present day chunk-honey. Sometimes it would also fall to my lot to hold, and even use, the pipe when grandfather's hands were busy holding the skep and cutting the honey. It always raised me several notches in my boyish estimation to be called upon for such important assistance.

G. C. Greiner

One episode of those early days left indelible marks on my memory even to the present day. I was yet a mere child when grandfather hired me for "einen silbergroschen (about 3 cents) to get one of those straw skeps from a beekeeping friend who was village teacher about two miles distant from our city. To carry the skep easily, grandfather rigged me up some straps, knapsack fashion, and encouraged by the silver coin, which looked like a fortune in my eyes, I started on my mission. At first, when I started from that village on my home trip, the skep was not much of a load, but it soon began to grow heavy, and the farther I went the heavier it grew, and before I had covered half the distance the load becoming too much for my yet tender constitution, I caved. I do not now remember how my venture finally terminated, but I have a very faint recollection that the hired girl was sent to meet me and assist me home after I had failed to return in proper time.

From the time I left school until 1875 nothing of a beekeeping nature, nor anything of great importance transpired in my life's career, except that in 1862, rather than waste three years' service in the German army, I landed on the shores of this great and glorious republic. At that time I had not the slightest idea that keeping bees and producing honey should ever become the means of earning my daily bread and butter. In fact, I had never heard that the beekeeping industry could assume such paying proportions.

Having had several years of practical experience on one of those large sugar beet farms in Germany, I intended to follow agricultural pursuits for my main dependence in this country. At first this proved a paying investment. During the civil war all farm products had risen to unheard of high prices, which reached their highest pitch just before and after peace had been declared. But things changed quite materially when the discharged armies came home. The large armies of consumers turned into armies of producers, and in a short time a reaction in the prices of all farm products took place. They dropped from year to year; lower and lower they went, until they reached the lowest ever known, and consequently farming did not pay any longer.

About that time I began to look for an opening of a better paying occupation, and an opportunity presented itself in the following way: In 1875 it happened that a neighboring farmer had purchased from a traveling agent, a town and county right for a certain beehive, similar to the jumbo pattern, and intended to engage in its manufacture for his own use as well as for the trade. As I was at leisure during that winter, and somewhat mechanically inclined, this neighbor engaged me to manufacture his hives. This work suited me so well that by spring, in partnership with my younger brother, F. Greiner, we secured by mutual consent the interest in the manufacture and sale of the above mentioned beehive and prepared to conduct that business as our exclusive occupation. It also happened that my brother, who had come to this country a few years previously for the same reason I did, was a natural born beekeeper, and as part of our season's work consisted of transferring bees for our customers, his natural inclination in that direction proved a valuable acquisition to our business career.

In spite of the fact that we were entirely destitute of any beekeeper's experience, we succeeded from the very first beyond our expectations. Our hives found ready sale and the following seasons favored us with bountiful honey crops. Thus things went along to our complete satisfaction until the disastrous winter of 1880-81, which swept most of the bees in our territory out of existence and blasted all our hopes. It wound up our hive trade, as it seemed, for all future time. But, fortunately, the honey crop of the following summer from our own bees that we had left, was an unusually heavy one, which induced us to continue the production of honey as a livelihood for the future.

F. Greiner, of New York State

A little later family conditions made it desirable to change my home from Naples to La Salle, which made it necessary to sever our business connections, each one of us continuing our business on private lines at our own homes. Since then, my brother has followed up Mr. Hutchinson's theory of "more bees," while my ambition has taken for its aim "more surplus yield," and that we both have been reasonably successful is proven by the fact that my brother owns from two to three hundred colonies, while my average yield has been in late years about $20 per colony, spring count. This, however, does not include our last season's crop. All beekeepers know that, with a few local exceptions, we had almost a complete honey failure all over the United States.

La Salle, N. Y.

## Laying Workers Which Produce Female Offspring

By John Anderson, M. A., B. So.

In Dr. Phillips' Beekeeping (1915), there are two references (pp. 187, 203) to a paper by Mr. G. W. Onions in the Agricultural Journal of South Africa for May, 1912. Mr. Onions asserted that, among Cape black bees, laying workers occurred very frequently and from their eggs drones, workers and queens were produced. This extraordinary claim seems to have attracted little attention at the time except that one or two Cape beekeepers wrote refusing to believe the story. Mr. Onions, however was not discouraged, and when he removed to Rhodesia he sought the help of the Division of Entomology at Salisbury. Mr. R. P. Jack, F. E. S., undertook the superintendence and checking of fresh experiments in parthenogenesis, to be carried out at Salisbury, but with bees from Cape Colony. A full account of those further experiments, conducted with scientific care, was published in June, 1917, in the Transactions of the Entomological Society of London. Mr. Jack is convinced that Mr. Onions has proved his conclusion that workers of the Cape bee "are apt to develop the habit of laying eggs, and that these eggs may produce workers, queens or drones, but do, as a matter of fact, mainly produce workers."

Dr. Phillips, Mr. Onions and Mr. Jack seem to have been unaware that the power of certain worker bees to produce female offspring was noted, and the facts published, many years before the appearance of Mr. Onions' first paper in 1912. The oversight is pardonable in the case of Phillips, Onions and Jack, because such recent writers could hardly be expected to know that valuable papers on beekeeping used to appear in the Journal of Horticulture, published at London and edited by Robert Hogg, LL. D., F. L. S. English contributors to the Journal of Horticulture included Cheshire, Woodbury, Hewitt, and the two Carrs, while among the Scottish writers were Pettigrew, Thomson, Raitt and McPhedran. Every one of these writers made additions of permanent value to our knowledge of beekeeping, though, with the exceptions of Cheshire and "W. B. C.," their names are scarcely known to the present generation of British beekeepers.

John Hewitt, of Sheffield, England (and his name ought to be mentioned with those of Schirach, Huber, Dzierzon and the other great masters) made his observations on laying workers more than 30 years ago, and published a brief account of them in the Journal of Horticulture for 1892 (August 11, page 134). It was, perhaps, fortunate that the Journal of Horticulture was not exclusively a bee journal, and that Dr. Hogg was broad-minded enough to realize that perhaps, after all, Dzierzon had not said the last word on parthenogenesis in the bee. When Hewitt attempted to make his discovery known through the bee press of Britain and America his main conclusions were either suppressed or covered with ridicule. No discoveries might be published which would not fit into the Dzierzon theory. It is thus only by a kind of accident that we can establish priority for the original discoverer of an unsuspected peculiarity in the workers of certain races of the honeybee.

European bees, with which alone Dzierzon was familiar, have one marked defect in their otherwise perfect arrangements for preserving the continuity of the stock. At the time when a virgin queen is ready to be mated there is no other queen in the hive (except perhaps in supersedure) and there is no means of making one. The virgin is the sole hope of the stock, and if she be lost or fails to mate, that stock is doomed.

Hewitt had been working with Punic or Tunisian bees, which he had imported direct from North Africa, and found to differ greatly from the bees of Europe. For example, a stock which had lost its virgin on her mating flight, promptly developed laying workers, and raised queens from the eggs of those workers.

"In one case a number of Punic workers entered a stock of queenless Carniolans and reared a queen from the eggs they laid. This queen is now in the British Museum." (1892.)

It is clear from the narrative that Hewitt had been familiar with the facts for some considerable time, and that his object was to get others to verify observations, of the accuracy of which he entertained no doubt whatever. He proceeds to give directions for inducing Punic bees to rear queens from the eggs of laying workers. The aim is to reproduce as nearly as possible the conditions of a stock that has lost its queen on her mating flight. It must be queenless and broodless with some drones present.

"The bees will soon be busy laying and rearing queen cells. If any of these seem natural, that is not long ones, but just like ordinary queen cells, queens will most certainly be found in them, and not only so, but numbers of worker bees will hatch from worker cells. Hence Punic worker bees have the power to raise both queens and drones from themselves. The instinct seems perfect in the Punic bees; only partly so in Syrians, and it is quite absent in our native bees. I cannot go into the matter just now, but should like as many as possible, who have those bees, to confirm my discovery, incredible as it may seem."

From these quotations it is quite clear that Hewitt had made the greatest discovery in the natural history of the bee since the time of Dzierzon, and that he anticipated Onions by at least 20 years. The bees of Africa are probably nearer to the ancestral stock, and the workers still retain the power of reverting to the primitive condition when every female was a potential mother. Hewitt's remark that the power is less perfectly developed in the Syrian bee and totally absent in native bees, is highly significant. Dzierzon and his co-workers, being acquainted only with the more specialized bees of Europe, had no chance of making this discovery, and made the very usual mistake of generalizing from insufficient data.

Meantime only the barest facts are mentioned, but it is evident that a new vista has been opened up, and that we must now consider parthenogenesis in the honeybee from quite a different standpoint.

Agricultural College,
Aberdeen, Scotland.

## Co-Operative Selling Pays Texas Honey Producers

By Chilton Gano

(Concluded from last issue)

THE story of how poor market conditions for Texas honey led 79 beekeepers to meet and decide on co-operative marketing, and how an immediate result of their uniting was the advance of wholesale honey prices 2 cents per pound, was told in the last issue of American Bee Journal.

This price advance took place within six weeks after they had organized, indicating that the mere news that things were to be conducted in a more businesslike way had a good effect on the trade. Then began the work of putting their plan in operation.

The prime purpose of the move was to improve the selling methods. The first step was to adopt an association label. The Lone Star label shown in the illustration was adopted. Six sprays of flowers surrounding the central design are the chief honey plants of Texas, namely, guajillo, catsclaw, mesquite, alfalfa, horsemint and cotton. The blank space is for the kind of honey, comb or extracted, and for a number representing the apiarist who packed it. The Association announced that honey bearing this label is guaranteed, will be distributed at uniform prices, and will be in every way standard.

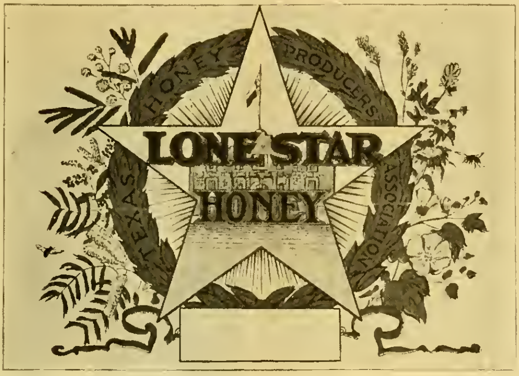
Instead of establishing an extensive official inspection system to protect the label's good name, the Association withholds a part of the price from the beekeeper until time has been allowed for the purchaser to enter any complaints. This results in the producer being paid as follows: 50 per cent of the value of the honey, at the current market price on day bills of lading are received; 50 per cent of remaining amount 30 days later, and final settlement within 90 days.

To further protect the purchaser, each member must sign a statement in triplicate to be attached to all bills of lading, guaranteeing that his honey is packed in accordance with Association grading and packing rules, and that he will be responsible for any loss occasioned by failure to put up a standard product.

Members can, on election, sell their honey direct, but it cannot then bear the Lone Star label.

### Finding Purchasers

Mr. LeStourgeon outlines the method of selling as follows: "The members of the Association receive on the first of each month a blank form which they are required to fill out. The information which this blank contains gives the manager an idea of the condition of the honey plants, the amount of honey actually on hand, the locations where honey will be available for the market and on what dates; also, kind and how packed. With this information the manager approaches the wholesaler, who can then instruct his traveling salesmen of the price of honey for future delivery, taking orders from consuming points for direct shipment. These orders are mailed back directly to the manager, who in turn directs the honey producers where to send their honey. The honey is shipped direct to the consuming point in the amount desired. Attached to bills of lading is a statement giving the grade, the amount, the manner of packing, and the guarantee. A certain claim period is allowed the purchasing merchant. If the honey is not up to standard, the Association protects the buyer.



Brand used by the Texas Honey Producers' Association in marketing honey

"Under this method the manager receives and solicits orders, both great and small, for honey, bees, wax, etc., from all parts of the country, together with the price the prospective customer will pay.

"The jobbers and wholesalers are much pleased with this manner of handling the Texas honey crop. They are relieved entirely of advancing any money on shipments. They are relieved of storing it and of a great deal of bookkeeping. All they do is to take the order for the honey and remit to the Association office upon receipt of bills of lading. Many jobbers are so interested in this plan of marketing that they have offered assistance to the Association, some offering to take stock in the Association in order to guarantee the enterprise."

The ingenuity of the plan is at once apparent. The wholesaler's order-taking machinery is used to get the retailer's orders, but the wholesaler never handles the honey. It is shipped direct to the retailer. This eliminates much breakage, leakage, rehandling charges, etc. Again, having one man in charge of the entire distributing enables him to avoid allowing any market to become glutted.

Prices are established in April and full publicity on them sent out to the trade.

Advertising of a general nature has not yet been done, but in addition to using a standard label, each case contains a display card for the retailer to use to call attention to the honey.

### Influences Legislation

This closer association of the honey interests of the State has also improved their ability to favorably influence legislation affecting their industry. This fact was notably proved when the Texas Senate proposed to lop $2,000 from the foulbrood appropriation. Within 48 hours the Association had engineered indignant protests from the "folks back home" and prevented the cut.

Again, when the Washington authorities were considering the tin can shortage, and the committee had failed to list honey as a perishable, the Association was able to claim attention for honey and assurance of a supply of honey cans. Here the Association performed a national service for its industry.

A third interesting instance of influence with Government authorities occurred during the mobilization of troops on the Mexican border. It was impossible to sell honey for army use, because honey was not on the regular army ration nor on the conversion tables of the War Department. The Association took the matter up, and in less than six weeks permission had been granted to add honey to the troops' bill of fare. This opened a market for thousands of pounds at Camp Wilson alone.

### A Financial Success

In July the Association will be two years old. That they have been highly successful years is evidenced by the actual figures on higher prices secured for honey and savings on purchases of supplies, given in the first installment of this article. In both its selling and purchasing departments the Association has been financially successful in a very marked degree.

But the mere fact that it has organized the industry has had far-reaching effects. It has earned the respect of the trade, the state and national authorities, and the consuming public, with the result that the Texas honey industry has been resurrected. Producers are no longer cutting each other's prices and undermining each other's security; the trade can get a standard product, uniformly packed, and with satisfaction guaranteed, and the consumer can feel he is buying a product of merit when he asks for Lone Star brand.

In conclusion, a word about the membership rules may be of interest. There are no annual dues. Shares are $10 each, and ownership of one share entitles the holder to all privileges. One hundred shares is the limit for individual ownership. Profits of the Association are rebated to members in proportion to business done.

---

## Centralizing Bee-Yard Control

By J. J. Wilder

WHILE we are learning more and more every season to control our bees, holding them under check and managing more of them with the same help, we must learn to control the group of yards as well as the bees in them.

In the South many outapiaries are now being established making this a timely subject which it pays to look into.

I have looked over our country, picked out locations and established nearly 100 yards and I know what it means to make a mistake in this work; and, on the other hand, what it means to get the proper location.

I once placed a yard on a creek just one mile from the highway, with a rough, crooked road leading to it, and the only way out was to back out to the highway.

While the location on the creek was ideal in surrounding and in distance from other yards, yet the difficulty in reaching it made it a failure. We finally moved this yard near a good road, where we had to pass on our way to other bee-yards.

Another time I located a yard at the end of a settlement road, a mile and a half from a good public road. The settlement road was never kept up, and it was almost impassable at times. This meant a loss of time, and we moved this apiary where it is more easily reached.

Another yard, which was our first outyard established, was placed in an ideal location, and we always obtained a good crop, but there was no available territory beyond, where other yards could be established, and to reach it we had to make a special trip. In consequence it was sometimes badly neglected.

For success we must have yards conveniently located, so we may reach them with the least possible delay. We must centralize as much as possible in order to cut down mileage and allow more time for general apiary work. Of course, good roads have much to do with this subject, whether the distance be covered with teams or with trucks.

It is best to have for the central point of your apiaries, your home yard, or a specially good location for bees. Here you should have a large honey-house and workshop. The bees, at this center point, will be needed to take care of extra combs from outyards, clean up all freshly extracted combs, finish unfinished combs, use up any small amount of honey broken up or rendered unfit for packing, clean out cappings and do many other things that are a great help to the business.

The best stock can be kept here and the yard run as a queen-rearing yard, or much of the increase can be made here, because it is the most convenient yard and can receive daily attention. In consequence, this is a very important yard.

For other locations two and one-half or three miles should be your standard distance between yards.

In the southland we are blessed with abundant water courses. Large branches, creeks and rivers are almost our only salvation in beekeeping. Along these are swamps or low lands which bring about a complete change in the sources of honey, and as a rule bees will not do half so well out of reach of them. So we follow these as closely as the good roads will permit.

The first yard should be located not less than a half mile from a stream and more than 300 feet from a road, so you can drive into the apiary with a wagon or truck.

To establish your other yards, watch your nearby streams closely, at the same time keeping in mind the good roads. Perhaps it will be best to establish all your yards in a direct line, or it will suit better to have them placed in a large circle. All this depends upon the streams and the roads. If in a direct line 25 or 30 miles is as far as your last yard should be from your center point.

### Other Central Apiaries

Rather than extend too far from one central point, it is better to establish other centers, placing the groups at least 100 miles away in an entirely different section, if possible, where the climate has changed somewhat and the honey plants will be of different variety.

The advantage of this is that, should you have a failure or a partial one in one section, such would not be likely to occur in the other apiaries. The main honey flow may come in the spring at one branch and in the summer at another. Then, too, you can shift your packers from one branch to the other, as well as your apiarist, for, as a general rule, the work slacks up in one place when it is just coming on at another. You also have a variety of honeys to offer for sale.

Numerous branches can be established in this manner, always leaving a distance of 100 miles from other branches. These can be established at the same time providing that labor and capital is at hand. It also is very important to have the center point as near as possible to some good shipping point.

The question has been asked, would it be advisable to erect a honey-house and install a packing plant for one yard, which is at considerable distance from the central apiary? We have tried this and found it a failure, for the pasture or range is never strong enough to support a large apiary and it would be too expensive to have a complete outfit for 75 or 100 colonies. The average production of honey in the Southern States is less than 50 pounds surplus per colony and this small amount can easily be carried to a central point for extracting. The supers can be returned as trips are made to and from the yards for general apiary work.

Establishing apiaries and centralizing them as outlined will make work easier, lessen expense and bring success.

Bradentown, Fla.

## Santo Domingo Conditions

By H. Brenner

THE pioneer beekeeper in the Republic and old reader of the American Bee Journal is Dr. Maldonado, whose natural leaning is towards entomology. The doctor, a Spanish gentleman, is about 42 years old and a physician of unusual ability. He graduated at the University of Spain and speaks perfectly English, French, Spanish and Esperanto. In my researches about the flora and fauna of the island and in apiculture he is of great help to me through the encyclopedical condition of his knowledge. When I am back from my trips to rest in Sanchez, the evenings, on his verandah, sometimes till 1 and 2 o'clock in the morning, I consider as my best spent time. All his apiaries except in Arenoso are on his own land, and he has picked out over a dozen more sites which will be stocked in fall and next year. Herds of blooded Holstein cattle from imported bulls are grazing in his fenced (barbed wire) pastures. He also is a merchant of great ability, and a graduated pharmacist, owning a drug store in Sanchez, another in Matanzas, and interest in others in different towns. His agents are all over the Republic. I am glad to say that he will free himself gradually from some of his present enterprises to spend more of his time in apiculture. Another gentleman for whom I predict a future in beekeeping is Captain Dr. Dreyfus, our immigration officer and military physician. The doctor has in his residence an observation hive with a double colony, and intends to buy land on the north coast and go in extensively for beekeeping. The real beekeepers in the Republic are mostly wealthy land owners who are able to buy the materials. The poorer classes and very large majority, have colonies in logs, from which they get honey in place of sugar, and wax to make candles for light. I would like to send some pictures, but I lost my camera in crossing a flooded river in a log canoe; it fell through the negligence of a native boatman, and of course disappeared. I have not yet been able to get another.

A lover of bees in Santo Domingo, Dr. B. Maldonado, Sanchez, R. D.

About a month ago Dr. Maldonado bought a run-down apiary 5 miles from San Francisco de Macoris. We concluded to move the bees and material in the night to the station, load a car and use both in our apiary in Arenoso. The doctor made all the arrangements, etc. We had about 18 mules and horses and only four men. The first trip before midnight went off all right and we reached the station, bees and all, in good condition. After midnight it turned cold and the hands lighted a fire and refused to work, and we had to wait with the remaining colonies till the sun came out, as the doctor and myself could not load the mules ourselves. We tried it, but had to give it up. We had a time when we started, as the mules objected to the bee stings, jumped, kicked, ran against trees and against each other with the colonies tied with ropes on their backs. I never had such a time before, and never want to see it again. We continually stopped the cracks which opened in the old, rotten hives, with clay, but it did not help much. The richest joke came when we reached town, at about 9 o'clock. We had the streets for ourselves and the bees. We lost ten colonies scattered along the trail. Of course we went back, nailed the boxes together and stopped the cracks with clay and brought them all safe to town and depot.

I am thinking of giving up my actual apiary work here to have more time to follow my real inclinations of researches and investigations, especially in apiculture. There is a large field open here in this respect and hardly a week passes that I do not find something new and unexpected among the bees. Since I am known here, I can well afford it, as every beekeeper will gladly extend his hospitality to me for the little help and advice I can give in return. I also will have more time to inform the readers of the American Bee Journal of my doings, and to put down for our station in Texas my observations in tropical beekeeping.

### Questions Answered

With the two last mail steamers I received a number of inquiries from readers of the American Bee Journal which it is impossible to answer separately.

**W. Va.**—I have not met any bee diseases.

Market for the honey is now New York.

I do not know what honey is worth at present.

No winter in the tropics.

Property is safe here, but they certainly steal honey out of the apiaries if no one lives there.

Nectar is coming in the whole year, more or less. A real flow I have seen at the end of December, January and February. They told me that the main flow is in June, July and part of August.

**Ulster, Pa.**—I cannot use any U. S. stamps for letters here.

Thank you for your compliments about my articles.

Your other questions do not belong in the American Bee Journal, but if the editor does not mind, I can inform the readers also about quality, price of land, population, etc., as I am going to buy myself. (Will be glad of a short article on this subject.—Editor.)

There are no poisonous snakes here, as far as I know.

There is lots of room for people like you without killing the natives. There is some reason for their laziness; nature produces everything they need. So why should they work?

**Dallas, Tex.**—I do not know if you can stand the climate here. I never have been sick and my health is improving.

Lots of mosquitoes in some parts, and in some less. I cannot sleep without a mosquito bar.

**S. Carolina.**—Not advisable for strangers to buy land here. I know several cases where buyers had to pay twice. If you have a friend to advise you it is better.

The bulk of the honey is produced in hollow logs. The natives press it out, brood and all, put it in gasoline cans, stop the opening with a green corncob and sell it in the little country villages to the buyers, who sift it through coarse wire netting into 50-gallon barrels. This is the stuff that is ruining the honey market for the tropics. For about two or three weeks it tastes all right, but after that time it gets a nasty taste and is hardly fit for table use. I send samples of extracted honey to dealers and also to the American Bee Journal

Sanchez, R. D.

---

# Beekeeping in Jerusalem

By Ph. J. Baldensperger

JUST seventy years ago my father arrived in Jerusa'em bent on missionary work among the natives. He had a greater belief in acts than in words. He founded an apiary on old principles on Mt. Zion. After a long and active life he laid down his weary head and now rests, since 1896, not more than a hundred yards from his first apiary, in the cemetery near by. His first apiary resembled all apiaries which have existed in the country for the last three thousand years, without a single change. The pear-shaped hives, manufactured in a pottery inside the city walls, had been copied for generations without number, and faithfully reproduced the patterns no doubt imported from Egypt and Assyria by Jews returning from captivity.

Beekeeping was unknown to the Hebrews before their contact with the ancient civilization on the Nile and Euphrates, as is evident by a passage in Isaiah vii, 17-18: "The Lord shall hiss for the fly that is in the uttermost part of the rivers of Egypt, and for the bee that is in the land of Assyria. And they shall come and shall rest, all of them, in desolate valleys, and in the holes of the rocks, and upon all thorns and upon all bushes." Hebrew scriptures talk of the "Land flowing with milk and honey," but the error is only from the translation. Milk, or rather sour milk, the Arabic "Labban," is still a dainty among the natives. As for the Dabsch, translated "honey," the article is more widely known yet, and called Dibs. This syrup is prepared from the boiled juice of grapes. Dibbs is now made, as in the older days, in great abundance in the magnificent vineyards all around Hebron.

Nothing has changed in the Land of Promise since the day of Joshua and Caleb, excepting some religious rites. But we meet everywhere the same people, the same names, the same manners, the same way of living, and, to a great extent, the same language.

Joshua and Caleb, it is stated, came to the brook Esheol and carried away big clusters of grapes to their astonished tribesmen in the wilderness. The Moslem Hebronites of our day raise the luscious fruit in big clusters and offer them for sale in the neighboring villages and as far as Jerusalem. They also boil the grapes into Dibs, on the same spot at Ain-Askala, in the same way as it was done before the Hebrews, in rock-cut presses. "He made him to suck Dabsch (translated honey) out of the rock." Deut. xxxii, 13.

There is no doubt for me, who was born and grew up amongst the natives, that they are the closest and most authentic descendants of Canaanites and Hebrews. My plea for them is that when this great war is over they should receive the land promised to them ages ago, a promise now renewed by President Wilson, to dispose of themselves. Faithfully they have clung to the native soil, faithfully they have continued the traditions and to them alone it ought to be reserved.

When I was born, in 1856, near the walls of El-Kuds-esh-Sharif, the ma-

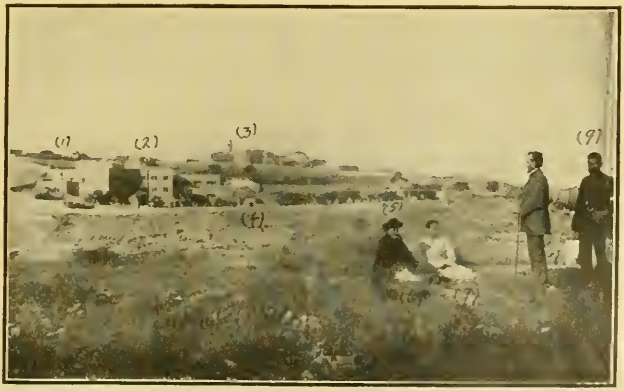
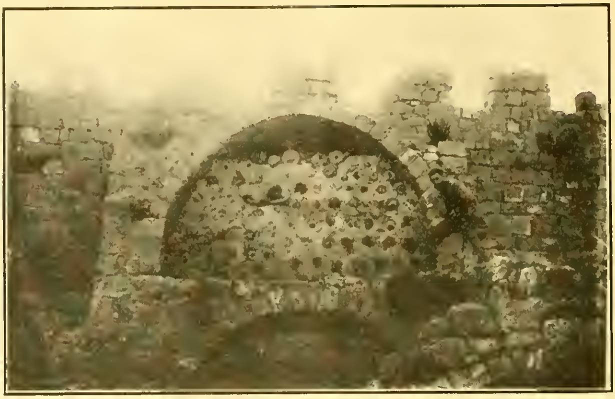


Fig. 1.—Jerusalem. 1, city walls; 2. Zion's school; 3 David's grave; 4, Apiary; 5, cemetery; 6, Miss Baldensperger; 7, Mrs. Baldensperger; 8, H. Baldensperger, Sr., (lived in Jerusalem 1848 to 1896); 9, Henry Baldensperger.

jestic sanctuary, as Jerusalem is called by the natives, the apiary, according to the archaic system, was all tucked up before the solid arch in masonry, with a dark passage behind to work the bees.

Messrs. D. A. Jones and Frank Benton came over from America in search of new races of bees, and under their instructions the dark passages and archways were discarded and the bar-frame hive and American modern methods introduced by their disciples, Baldensperger brothers. (This was in 1880.—Editor.)

And the light was so clear that Ehmad-en-Nahale, our indigenous beemaster, was never heard of again. He continued to knock the coffee in a dark street in Jerusalem, as he and his forefathers had done for generations. Moslems hold fast to their methods. It is profanation to grind the coffee, just as it is profanation to walk into sanctuaries with shoes on. "Take off thy shoes from thy feet, for the ground where thou standest is holy." The good Nahale used to come occasionally in two seasons, swarming and gathering the honey. In April he would gather the swarms, gently showing us the Emire or Duchess, as he called the mother-bee, and in August he took out heavy combs of honey, which he laid on plates with great satisfaction, and a sweet smile. He was very sober in words. 1. "The bees did not like harsh persons." 2. Perhaps he preferred to keep the "secret success" for himself. Quietly he gathered cow's dung, filled with it a small pitcher, put a burning coal to the fuel and patiently blew till a tolerable quantity of smoke gave him security against the bees. He did not live to see our modern inventions, smokers, extractors, comb foundation and the like, and I am afraid he could not have tolerated having his pets taken out of jar hives and introduced into wooden boxes, and in the open air.



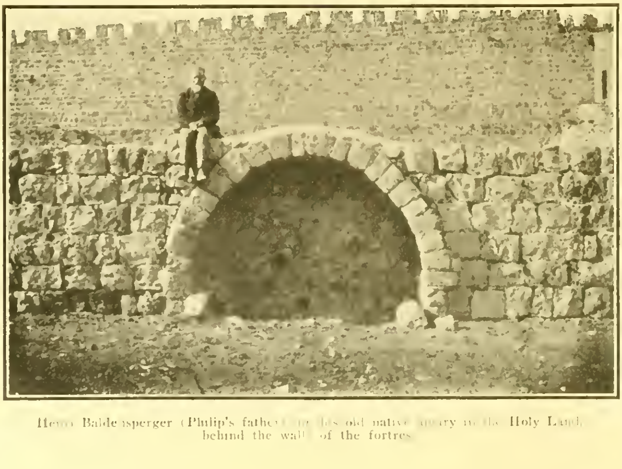
Henri Baldensperger ( Philip's brother) near the old pear-shaped hives piled up under a double rank of arches in the Holy Land

Poor Nahale! Dear tradition! Though established on a high and dry plateau, almost in the center of Judea, Jebus, the dry, as the name indicates, was a comparatively good honey region. Big apiaries set up in the old fashion by the Greek monks, in the environs of Jerusalem, gave good crops to the convents. Honey was kept for church grandees there, as it was only known by the better classes in town. There was a time when honey was more abundant in Jerusalem, since there existed still the "Honey-man's street," Haret-el-Assali.

In the American Bee Journal for December, 1917, a list of bee places is given in the United States. Palestine, though very small, has 6 or 7 names reminding one of bees and beekeeping. It measures hardly 25,000 square kilometres and has a population of one million, or thereabouts, whereas the United States, spreading over 9,383,000 square kilometres, with a population of over 100,000,000, has 73 bee places named. The names are spread from Baalbek in the north to the environs of Hebron in the south. 1. Nahleh (the bee), near Baalbek; 2. Daburiah (the hornet retreat), near Nazareth; 3. El Asaliyeh (the honeyed, in the Hauran, beyond Jordan; 4. Deir-en-Nahel (the convent of the bees), near Jaffa Latrone; 5 Asalin (the honey men), near Gath, Deir Imheisom, in Philistia; 6, Nahalin (the beekeepers), southwest of Bethlehem; 7. Deir-el-Asal (the convent of the honey), between Gaza and Hebron.

The town of Jerusalem was somewhat protected against the warm east winds, by the Mount of Olives, which winds have the faculty or drying up the nectar. The wind known as Sirocco, is more properly called Sharkie by natives. West winds blowing across the Mediterranean bring moisture and clouds which spread Nada, or dew, over the hills and greatly help the honey plants. On rare occasions the hot Sinum (poisoned south wind) blowing from the Sinaitic peninsula, dries up flowers and plants, and the honey season is usually a failure in consequence.

On warm days when the weather is calm, the bees find their way over the valleys of Jehoshaphat, Cedron and Hinnom and forage on all kinds of honey plants on the environing hills of Olivet, Siloam, etc. Olive trees and fig trees, which grow usually all around, have but very little honey, while almond trees around the Mount of Olives and Bethany, as well as down the Cedron, give an early lick in February and March. Hawthorn flowers, a little later, help the bees in their swarming propensities. As the town is built almost on the watershed between the Mediterranean and Dead seas, there are but few springs in the vicinity and they are several miles from the walled enclosure. Bees must look for the necessary water to raise brood in the pools of Hezekiah, Bethesda and Mamillah, as well as in private gardens. The disease-carrying mosquito (Anopheles) lives and thrives about the stagnant waters.



Henri Baldensperger (Philip's father) in his old native apiary in the Holy Land, behind the walls of the fortress

Beekeeping was mostly confined to open spaces against the interior of the walls, either toward the north, or the large gardens on Zion. The pine trees, as well as a few olive trees in the Armenian gardens, afford them propolis and a kind of droppings known as miellat (honeydew), from the pines. Long before this trench-building war, bees knew how to build trenches made of the resin found on leaves and branches, to shelter themselves against hornets or other enemies who tried to enter the hives. Small lizards and sometimes serpents, mice, snails, enter the hives, or would enter but for the propolis with which the bees entrench themselves against their enemies. The death-head moth (Sphinx atropos) swarms about the hives in autumn. If it gets into the hive easily it is often too greedy, and too swollen with the honey pilfered inside, and is killed by the furious bees. The skeletons are sometimes found by dozens at the bottom of the hives, embalmed in the resinous matter. Every portable fragment has already been carried out before propolizing.

(To be Continued.)

---

## Packages for Extracted Honey

By Morley Pettit

TYPES of packages used for extracted honey will depend on the form in which the ultimate consumer wishes to receive it. While capable of some education, that individual is something like a bee in that she (gender used advisedly), is the final judge as to whether the behavior of the beekeeper is acceptable or not. He who would sell honey must study the consumer, and as success in beekeeping depends on a knowledge of bee-behavior, so the successful disposal of the crop depends on a knowledge of the preferences of those to whom the sale is to be made.

Consumers may be classified as fastidious small buyers, and careful buyers of quantities. The former are mostly city dwellers, where similar foods in glass containers compete; they want liquid honey in glass. The quantity buyers in cities also want honey in liquid; but will buy in larger packages of tin. In cities where the sale of well liquefied honey has not been pushed, granulated honey will retail in tin or paper, or even in glass to a limited extent; but the majority of people, when given a choice, will buy honey which has been well liquefied in preference to that which is in the granulated form. The latter finds its largest sale among farmers whose wives have ample kitchen facilities and can liquefy it when they choose without much trouble. This is a satisfactory arrangement while supply falls so far short of demand, and because granulated honey ships more safely. When the need arises I am sure that the careful liquefying of all honey just before it goes to the consumer will greatly increase the demand.

### Storage Containers for Liquefying

The usual storage containers for liquefying or for sale to re-filling concerns is the 60-pound tin, because of the ease with which it is handled and heated. It can only be filled once with any degree of satisfaction, on account of leakage, rust and disease, and becomes a rather expensive package except for home use only. The alternative is a used wooden barrel. When emptied of glucose, alcohol, or some other materials, these can be steamed out, coopered, parafined inside and used for honey.

My personal experience with barrels has been confined to those which had previously been filled with glucose. They cost me one dollar each a couple of years ago, although I used to get them for half that price. They are made of white wood, iron-hooped, hold 650 pounds to 700 pounds when filled, and are not so hard to handle as one would think. There is a "knack" in handling them, and two men who have it will roll them almost anywhere with a rope and some planks.

The first lot of barrels I ever filled had not been coopered since they were emptied and must have been damp. The sun shone through the windows on them, and its heat, together with the drawing of the honey inside, dried out the staves and set them to leaking at every joint. When we came to team them to the station there they were. To make matters worse, the dripping honey smeared the hoops on the under side so they would not hold when driven.

I got through with that shipment with only a few dollars' loss from leakage; but it was a lesson to cooper carefully every barrel before filling. The hoops should be again driven just before shipping. Empties should be stored in a dry place several months, if possible, then coopered well and waxed. On no account should barrels intended for honey get wet. The ends of the staves swell, and because the hoops prevent expansion, their fibre is crushed so they gape open on drying in a manner which no hoop driving will close. They can be caulked with rushes and waxed so as to hold; but it is a lot of work and the result is not so satisfactory as though they had been kept under cover. Liquid honey can be shipped quite safely in barrels, although, of course, the risk of leakage is entirely removed by granulation.

To liquefy honey which has granulated in barrels, the hoops and staves may be knocked off and the honey cut up with a piece of steel wire having a handle on each end. Some remove only the head of the barrel, dig out the honey with a clean spade and return the head for future use. It is possible to reassemble the knocked-down barrel, if one has a cooper's skill and tools. One would need to compare methods here in view of labor, cost of barrels, and the fuel value of the staves and head.

Honey in barrels can be sold only to such manufacturing and re-filling concerns as have facilities for handling them. Necessary changes in equipment used for handling 60-pound tins can easily be made, and a patriotic service would be rendered by such firms using barreled honey instead of tinned.

### Tin Packages for Selling

The standard tin packages for honey are: 60-lb., 30-lb., 10-lb., 5-lb. and 2½-lb.

Sixty-pound tins may be square and crated singly, or boxed singly or doubly, or they may be round and jacketed. Crates or boxes for square tins can be made or repaired at home, and square packages pack more closely for shipping. On the other hand, they jam more readily and leak in transit, and the first cost is slightly higher. They are seldom retailed and the Ontario experience is that in years of large production they are the hardest package to sell, probably because Ontario beekeepers use them too freely.

Thirty-pound lard pails, bucket-shaped, with a slip cover, japanned with a stencilled honey label, are sold to a limited extent. They are a good family size, and make useful pails when empty; but they can be shipped only granulated and are awkward to crate or box. I have seen small grocers in Montreal dig granulated buckwheat honey from them for retail in wrapping paper.

Ten-pound, five-pound and two and a half pound pails are made both slip cover and lever cover, both plain and lithographed. For retailing at home the slip cover is a little more convenient; but it is not so satisfactory for shipping. So long as demand exceeds supply, plain tin lever cover pails may be sent direct to the consumer for use at an early date. Pails lithographed with the beekeeper's brand, name and address, sell better, keep free from rust indefinitely, and continue to advertise his honey so long as the pail continues in use, wherever it goes. Plain tin pails of honey stored in unheated rooms in changeable weather fail to warm up quickly with a rising temperature, and their cool surfaces condense moisture; frequent wetting and drying dull and soon rust the tin, and lower the selling value of honey which is otherwise first-class. Furthermore, custom requires that all tin containers of food for retail be covered with an attractive camouflage. In order to compete on the shelves of the high-class grocer with other package goods, honey must be made quite as attractive as they. Uniform crates of 60 pounds capacity for all the smaller sizes are standard for shipping.

By a ruling of the Ontario Beekeepers' Association, ten-pound pails and smaller sizes are filled gross weight, and their size, as manufactured in the Province, corresponds. Previous to the adoption of this ruling much confusion prevailed. Some sold gross weight, using pails of the right size; others sold net weight and required larger pails. The manufacturers had to make two sizes of pails so nearly alike that mistakes in ordering and in filling orders were frequent. Beekeepers selling net weight lost the price of the pail, or asked for its return, with indifferent results, or charged extra for it and made the consumer dissatisfied, or brought it back a second-hand pail later, or lost custom through charging a higher price for their honey than those who sold gross weight.

All this confusion of selling practice resulted in heart-burning and incrimination, until the decision of the association established a standard which most beekeepers now observe. In selling gross weight the beekeeper does not conceal from the buyer the fact that he is sharing with him the cost of the package, the custom is general and there is no objection. Where the net weight custom is enforced by law, as in the United States, prices become adjusted accordingly. Ultimately the consumer pays—he must if production is to be continued; and it amounts to about the same thing whether we sell net weight or gross weight, so long as all sell the same way.

Sixty-pound tins are always filled net weight. These are sometimes made too large and the novice puts in amounts varying from 62 pounds to 65 pounds, keeping account of them and itemizing the weights in his invoice when selling. He is unfortunately, though not unjustly, disappointed to find that the buyer will only pay for a standard amount in a standard package.

### Glass Containers for Honey

Well liquefied honey is sold in a great variety of glass containers, from two-quart jars down to small bottles for individual service. First cost, breakage, boxing and increased freight rates make glass an expensive package; but it puts up an attractive appearance and pleases Madam Fastidious Buyer. The individual service bottle is absolutely necessary if patrons of public eating places are to have honey at all. Honey is too "sticky" to serve in public in the usual way.

### Paper Containers for Honey

From time to time different forms of paper honey containers have been advocated. Parafined manilla paper bags, advocated by R. C. Aikin, of Colorado, were among the first. He filled them with alfalfa honey and let them stand open until it granulated, then folded the tops down and sealed them. They were nicely printed in colors with the beekeeper's name and brand, and made an attractive package. I filled all sizes of these from the 10-pound size down, with clover honey, which granulated hard and firm. Some high-class grocers tried them, but they did not sell well. Their customers preferred liquid honey when they could get it. Furthermore, the bags could not be kept long in a warm temperature without becoming soft and sticky. In other words, the honey, of whose keeping qualities beekeepers boast so much, became more perishable and more liable to be a loss to the dealer who did not happen to sell it promptly. Next came cone-shaped paper milk bottles, recommended by W. A. Pouder, of Indianapolis. Their fate was the same as that of the bags.

About that time opening large tins or barrels of granulated honey in the grocery store and retailing the honey wrapped in paper like bulk butter was tested extensively. In one case a barrel of clover honey, without the barrel, was made the center-piece of a grocer's Christmas window, and created quite a sensation. In another case the manager of a chain of provision stores in Ontario arranged with a beekeeper to purchase clover honey in 60-pound blocks in tin or wood, intending to strip and use them for window displays before cutting them up to retail by the pound.

These practices were soon discontinued; but we thought the failure was due to prejudice in favor of package goods for retail and cast about for a convenient and inexpensive package for granulated honey. We still believed that Mrs. Fastidious Buyer would like granulated honey if we got it to her in the right way. So "honey bricks" were introduced. That is, the block of honey was cut up with wires into bricks of uniform size, a butter-cutter being used for the purpose. Each brick was wrapped in thin waxed paper and placed in a carton, which was then covered with a lithographed label, fastened at both ends with tasty seals.

In the Pettit apiaries honey bricks were tested most thoroughly. They sold well at first, but repeat orders came slowly, the preparation of them was slow, disagreeable and expensive, and the second season we did not think the matter worth following up. Even the firm who advertised them most widely does not seem to have any more to say about them, and I do not know of any style of paper package being marketed extensively at the present time.

So the pendulum of the paper package has swung with the years and the reasons for its failure to stay may be summed up as follows:

When the two are marketed side by side, honey which has been carefully liquefied sells more freely than granulated honey. Even the best honey we are able to secure does not always granulate with a smooth, dry grain, suitable for a paper package. If left exposed to the air honey generally loses aroma, flavor and specific gravity, yet such exposure is practically necessary when paper bags are filled for granulation. All granulated honey becomes soft in time, so that the paper package would not be safe for honey stored beyond the winter months. Yet this is likely to occur at any time, and thus one of the chief arguments for honey is lost.

The chief arguments in favor of the paper package are its cheapness and lightness; but for shipping, it would require stronger and more expensive crates. For those who like granulated honey they open up very nicely for serving, provided the honey has granulated well and has not gone soft. If the time should come that we cannot get tin at any reasonable price, paper seems the best substitute in sight. Until then I cannot see that tin is any more expensive in proportion to the price of honey, or of paper than it has ever been. Prices of all three have advanced. Dollars are cheaper than they were. It takes more of them to buy the necessaries of business and of life, so we stand about where we did in that respect.

-Georgetown, Ont.

## Being Sweet Without Sugar

By Mary G. Phillips

NOW that the canning season is upon us, every woman's thoughts turn toward sugar. Will there be enough for all of us to do the canning and preserving that is necessary in order to save the fruit in our gardens? We are assured by the Food Administration that what sugar there is will be fairly and equally distributed, but of course that means with the co-operation of every housewife. In a democracy like ours, the success of any plan of dividing food stores depends upon the willingness, sincerity, earnestness and common sense of the consumers, and that is what Mr. Hoover is banking on in his plan for the fair division of sugar.

We all know that there is not enough sugar now in the world to allow us the annual 81.6 pounds per person that we are accustomed to. But we also know that that is too much sugar for our own good. England is the only other nation to use such large quantities of sweetening, for her usual sugar ration used to be even larger than ours—86.3 pounds. People who live very active lives where muscular exertion is constantly necessary, need a great amount of sugar, because it is rapidly assimilated and its energy becomes immediately available to the body, but the ordinary person needs very little. The only defense that most us have for the amount of sweets that we eat is that sugar improves the taste of many foods, and we like it. Before the war, Germany and France were using just about half as much sugar per person as we were, and Greece and Italy were eating only about 7 pounds a year per person. Can you imagine the average American cutting down his ration to that? It would undoubtedly mean going without soda water and ice cream between meals, tabooing cake and candy, eating unsweetened cereal and all sorts of "sugar sacrifices," **but it can be done,** and if we can taste the sweet fruits of victory by now eating unsweetened foods, I move that we do it. It is carried unanimously, and so there will be larger quantities of sugar released for the preservation of this season's fruit crop. Dr. Alonzo Taylor says:

"Everything that we do, plan, eat, wear, must be analyzed and measured from one single point of view—will it contribute to the carrying on of the war, or will it contribute to its prolongation? There is no other thing in the world for us but to define everything in our lives as acts of military necessity or policy."

Although women are eager to conserve sugar, they are asking somewhat impatiently, "Why is there a sugar shortage?" and "Where is the sugar?' 'and the reply is the usual one, "C'est la guerre!" If you will look at a map of the world showing the regions where sugar cane and sugar beet (our only two sources of granulated sugar) are grown, you will see immediately why there is less sugar for us today. The largest producer of sugar cane is India, but with her enormous population she has no sugar for export. Second in production is Cuba, and most of the sugar for us and for Europe comes from that island and the other West Indies. The Barbadoes have had over sixty per cent of the surface cultivated for cane for two hundred years. But sometimes the crop fails in Cuba, and nowadays the ships to carry a crop are few and far between. It also happens occasionally that a submarine interferes with our obtaining the sugar we expect. Here at home we find cane growing only in Louisiana along the lower delta of the Mississippi.

However, within the last half century we have had a new industry arise—the manufacture of granulated sugar from the sugar beet, so that we no longer depend wholly upon sugar cane. The sugar beet grows in the north in regions where the summer temperature is around 73 degrees, and where there is considerable summer rainfall. In America it is produced principally in Michigan, Wisconsin, Minnesota, Colorado, Utah, Idaho and California. In Europe, unfortunately for the world, the areas devoted to sugar beet cultivation are the parts of northern France and Belgium now occupied by Germans, so that any sugar produced there goes for German consumption. Germany is the only other European country to raise sugar beets to any great extent, with the exception of a small area in southern Russia, also of no use to us. So it is that our allies must depend upon us for sugar. When we remember, too, that soldiers need more sugar to provide fuel for their bodies than when they were leading civilian lives, we will see how necessary it is for us to use as little as possible. Have you not heard stories of soldiers so starved for sugar that they would trade almost anything they owned or undergo any hardship for the sake of getting a tiny piece of chocolate?

I find that the easiest way to conserve sugar is to ration the family. I buy only so much each week, and if it does not stretch to the end of the week, we do without and eat honey. We generally find that it does stretch to the week following. Our great grandmothers had no granulated sugar, nor did the old Greeks and Romans, who were famous for their sweets, and indeed until a little over a century ago, everyone was dependent upon honey, maple syrup, sorghum or corn syrup. Honey is the most concentrated as well as the most ancient of these natural sweets. Beekeepers' wives are particularly fortunate in knowing this good food, and in having the opportunity of feeding it to their growing children. There are so many who do not use it at all, that beekeepers' wives might do missionary work in teaching its value, as well as in advertising their husbands' business, by talking for honey as a food. Granulated sugar is so refined in its manufacture that there is nothing in it but pure sucrose, while honey, manufactured only by the bees, contains not only predigested sugar, but also small quantities of valuable mineral salts, gums, and one of the two recently discovered mysterious chemical substances which are necessary to growth, called "water-soluble-B." There is an added value in honey to me, and that is its romantic quality. In its limpid beauty I see the myriads of flashing wings carrying into the dark hive the watery nectar, which by some strange alchemy known only to the bees, is transformed into this wonderful aromatic sweet. I think of the millions of generations of workers who have faithfully carried out the life of the hive as it was thousands of years ago. Probably back as far as the Stone Age, our forefathers searched the woods for bee-trees, in order to carry home to their caves the precious stores of honey. Can't you see the naked brown babies standing at the mouth of the cave, brushing their hair from their eyes in order to see better when father might appear down the leafy vista? Can't you imagine their joy when he comes bearing a sticky, dripping mass of broken comb on a grape leaf, and hear them murmur "Ugh! Ugh!" as they cram honey, pollen and brood into their mouths, all at once? That is Stone Age talk which means "Thank you, kind father, for this fine honey. It is too bad you cannot find bee-trees oftener."

It is for us who know honey not only to spread the knowledge of its value as a food, but now, we may well give up the use of sugar almost entirely, using honey instead.

Children are especially fond of honey, and there are many ways in which it may be used for them. Try making cocoa with honey and you will find there is a smoothness of texture and delicate flavor that is delicious. A pinch of cinnamon makes a pleasing variation. Then very often for school sandwiches, I mix honey and peanut butter, a combination much enjoyed. If you do not already own the Bulletin on "Honey and Its Uses in the Home," (Farmers' Bulletin 653), send to the U. S. Department of Agriculture, Washington, D. C., for it, for it contains many good recipes and suggestions.

I suppose that every beekeeper's wife has experimented with honey in canning. It gives satisfactory results, although the flavor of the fruit is generally a little changed, particularly if a strong honey is used. Apples canned in honey taste almost like quince, and they make a specially good pie. This year I shall preserve my currants in honey, making the famous Bar-le-Duc preserve, but I do not believe I shall pick out the currant seeds one by one with a needle.

**Currants in Honey.** (Bar-le-Duc.)

Take equal weights of honey and currants. Bring the honey to boiling point, add the currants and boil gently until the fruit is tender. If the currants are so juicy that they make the honey watery, remove the fruit and boil the liquid down until a rather thick syrup is obtained.

I believe that the patriotic thing to do this year with regard to fruit is not to make jelly if the fruit can be used in any other way. Canning requires least sugar, but if you have fruit which you wish to preserve, by all means make jam. Any housekeeper who has rows of shining glasses of clear jelly, cannot show them with pride to her friends this year. Instead, she would need to hide them with shame—but surely no American woman will let it be said of her that she is not strong enough to forego the pleasure of making and eating jelly when she has the strength to send her men to the battlefield with a smile. The brave women of England who have been getting along on the meagre ration of 8 ounces a week per person for many months, have succeeded in saving from that little bit enough to help preserve the large fruit crop. Now they are to be allowed an extra supply of as much as ten pounds for each member of the family. Any sugar over that amount necessary to save the fruit of their own gardens will be granted, provided that the jam made be sold to the government for the use of gardenless folk.

Many fruits may be dried for winter use, particularly apples, cherries and peaches. Others may be canned with no sugar or honey, as green gooseberries, or with thin syrup. Then, when they are to be used, more sweetening may be added if desired. In all my canning and preserving, I keep at my elbow all the government bulletins I can get on the subject. Those that were almost worn threadbare last season, and which I shall follow closely again this year, are Farmers' Bulletin 841, Drying Fruits and Vegetables in the Home; Farmers' Bulletin 853, Home Canning of Fruits and Vegetables (especially recommended for housewives in the south), and Farmers' Bulletin 839, Home Canning by the One-Period Cold-Pack Method (recommended for housekeepers living in the northern and western States). All of these may be obtained by writing to the U. S. Department of Agriculture, Washington, D. C. We cannot afford to have fruit spoil before or after canning this year, and so we must make ourselves as efficient as possible when it comes to preserving the fruit. We hear so much of German efficiency that I scarcely like to use the term, but if we can beat the German at his own game, we will surely win the war!

## Changing from Comb to Extracted Honey

By C. P. Dadant

MR. EDITOR: I am contemplating changing from comb honey to extracted. My frames are all alike for brood-nests. They are the standard Langstroth and the hives are 8-frame size. My comb-honey supers are half depth and, if fastened two together, would make one full depth extracting super, which would enable me to change very easily from one to the other. What I wish to know is whether you would advise to use half depth frames in those comb-honey supers and extract from them. I know that you have had much experience right along this line. I had thought that the shallow frames might be preferable, as one stroke of the honey knife would clean one side, in uncapping. I would appreciate any suggestions that you may offer

Very truly,

Delmar, Iowa.

In order to give my reasons for the ideas that I am about to develop, I have thought it best to relate my experience in comparative tests of both full stories and half stories.

We began successful beekeeping with the 8-frame Quinby hive, which may be properly compared to an 8-frame Jumbo hive. The Jumbo hive takes frames of Quinby depth and Langstroth length, and the Roots put them upon the market and gave them that name at the suggestion of A. N. Draper, who had seen our large hives in use and thought them just right. But our hives and the Jumbo hives are all made now of 10-frame size, because we noticed that the 10-frame colonies filled just as many supers as the 8-frame colonies, and they were 25 per cent larger, therefore yielding 25 per cent more honey on an average. That is to say, a colony in a 10-frame hive filled the 10-frame super as quickly as the colony in 8-frames filled its own narrower super.

For the information of those who may not know the difference between our Quinby frame and the Langstroth and Jumbo, we will say that the Dadant-Quinby frame is 2⅛ inches deeper and 1⅛ inches longer than the Langstroth or Hoffman frame. The Jumbo is of Langstroth length and Quinby depth. If we were beginning over, we would probably adopt that frame.

That the greater result with the larger hives is due to a greater breeding room for the queens was proven to us in the following manner:

About 1876, we took over 105 10-frame Langstroth hives of bees to manage for an old beekeeper who could no longer take care of them. He had worked for comb honey, but we preferred the production of extracted honey, so we prepared to run this apiary by our methods. We tried both full stories and half stories. The half stories (so-called) that we used on these 10-frame Langstroth hives just filled the requirements of the prolific queens. In many cases, supers put on the hive early were filled with brood, which gave us an increased amount of field workers when the heavy crop came.

Our own hives of 10-frame capacity usually had sufficient room below for the most prolific queens. This convinced us that the 10-frame hives of Langstroth size are too small to accommodate prolific queens. A story and a half Langstroth proved just right for handling. Of course, when we placed a second half story over the first, we secured honey in it.

At the same time we tried full-sized upper stories. We did not like them because the bees bred in the center of the upper stories or in the lower edge of their combs. So we often had both honey and brood in the supers. Someone will, perhaps, say: "Why did you not use a queen excluder?" Someone in the December number asked how the Dadants kept the queens out of the upper story if they did not use queen excluders. The answer to both is that the Langstroth 10-frame hive is too small and that we want all the brood the queen can produce in the spring. So we could not keep the queen out of the upper story if we used a 10-frame Langstroth hive without excluder, and yet we want all the brood that may be produced. With the larger hives the queens usually have enough room below and rarely go in the supers.

We have never used the 8-frame Langstroth hives. But if we had them now, I believe we would consider it necessary to use two full stories for breeding and more full stories when the crop came. A shallow half story of just the depth of the pound sections is too small for prompt extracting. Our own so-called half stories are deeper than half a story of Langstroth size. The side bar of their frames is 6 inches and the case itself is 6⅝ inches deep. This makes the combs of the right width for the use of the uncapping knife and an expert uncapper gives just two strokes of the knife, one downward on one side of the comb, the other upwards on the other side. So there is no motion lost, and that is how my son-in-law, Leon Saugier, in a red-letter day, uncapped 5,500 pounds of honey in 8 hours, in the bounteous season of 1916.

In our extracting supers we use one comb less than in the lower story. In an 8-frame hive we would use only 7 frames in the extracting super. If you use 8 frames in the upper story of the standard size hive, the combs will be too thin for profitable work. With 7 frames the combs will be thicker and the result will be less labor and less expense, with the same yield. In a 10-frame hive we use 9 frames in the super.

An advantage of the half-story super is in giving accommodation to an undersized colony. A colony may do fairly well and yet not be powerful enough to occupy a full additional story all at once. This is most in evidence with large hives. As the 8-frame hive is practically an undersize, the additional space provided by another full story would not look so vast as with our large hives. But in any case when you add another full story you positively double the size of your hive at one operation. This is a good move sometimes, but it often proves unsatisfactory. We prefer to do it more slowly.

The advantage of the full upper story system lies in having but one size of frames. This looms up big to many people, but it does not tempt us.

From the above experiences, you will probably conclude that, with the 8-frame hive, it is best to follow your suggestion and double your comb-honey stories and use full size frames. Very likely, after weighing all the arguments, that will be the best course to pursue. At any rate, by all means avoid using half stories as shallow as the pound section comb-honey super. They are altogether too shallow for profitable work and there is too much handling.

---

## Introducing Queens by Smearing With Honey

By F. M. Baldwin

WHEN the editor of the American Bee Journal offered a prize of $10 for a description of the best simple device in use in an apiary, I said "That's my money; I'll make my wife a present of it." Then at once I proceeded to write about it in my mind. But, alas! Like many other things I do, it was purely mental and never saw the light of day. The months have gone by; I have slept on my rights and have lost my day in court. The device is not costly. It calls for no extra investment; the article is already in use in every household. It is easily accessible, found in every kitchen. A coffee cup or a drinking glass is the thing in mind. If one of these is not convenient an old tin dipper or even an empty can will serve. So much for the simplicity of the device. Now, as to its usefulness.

While living in Florida I persuaded my friend, Rev. P. H. Hensley, Jr., of Brooksville, to go into the bee business, giving him such instructions as I could from time to time. He got a few black bees and I sent him Italian queens as frequently as he could use them. It was his first year with bees and he had never tried to introduce a queen by any method. I showed him how and he succeeded in getting all I sent him safely into the hives. Other novices have found the method a success. Prof. E. G. Baldwin, of DeLand, Fla., and Henry S. Bohon, of Roanoke, Va., are experts of many years' experience. They have found it safe, easy and time-saving. They are recommending it in their writings as well as using it among their bees. That it works with the novice and the expert unfailingly is enough to prove the practicability of the device and entitle it to consideration in any contest for a prize, but having let the opportunity go by unimproved, I cannot now claim the reward. He who fails to enter can lay no claim to a crown in a race.

First, find and remove the old queen, then pour about three or four ounces of honey into the cup. Put the queen to be introduced into this honey and roll her around a number of times with your finger until she is thoroughly smeared. Don't be afraid of drowning her. Just immerse her again and again until it looks like she is dead. Then turn the honey and the queen over the tops of the frames and let the mess run down between the combs, carrying her with it. Shut up the hive, being careful to provide against robbing, and leave it alone for at least three days. Don't open the hive to see how your experiment is coming along. To do so might cause trouble. Be patient, and when you examine after several days you will find the lady perfectly at home, and she will have laid a fine lot of eggs if she is a good breeder.

Sage—An old-fashioned flower for an old-fashioned virtue
(Photograph by John R. Douglas)

I have found eggs in abundance and also hatching larvæ the fourth day after introducing by this method, showing that no time was lost after the hive was closed up. The bees at once licked the honey off the queen and she was as much at home as if she had always been a part of that colony. It is my practice to let the hive alone until the fourth day. But Mr. Bohon, being of a more inquiring turn of mind, reports that he has found the queen at work laying eggs an hour after he poured her down between the combs.

Confessedly it is more difficult to introduce a virgin that is several days old than any other queen. Last summer I visited at Roanoke, Va. In August I raised some Italian queens in the yard of Mr. P. B. Hartman about five miles southwest of that place. Desiring to mate them I carried four virgins when they were four days old to the yard of Mr. Henry S. Bohon, five miles north of Roanoke, and introduced them by the honey route into three-frame nuclei. The fourth day, wanting to know how well my attempt to get them fertilized had succeeded, I opened the nuclei. Three of them had mated and were at once caged, returned to the Hartman yard and re-introduced by the method under consideration.

The fourth virgin was missing. It is my belief that she was lost on her wedding flight. But of course there is a possibility that the bees balled her. If they did, it is the first and only case of the kind that I have known. In a published article over his own name, Mr. Bohon says that he believes this method will work in more than 95 per cent of the cases in which it is used. Hope you can get some of the experts to give it a full test and report. If it is as safe as some of us believe, it is time the fraternity were fully advised about it.

Mt. Vernon, Ga.

## My Neighbor's Garden

By C. D. Stuart

When the honeymoon is over, then the humdrum life begins. After two blissful months I went back to my neglected bees, and the Magic Girl started on a conventional calling expedition. Already she had made friends of my neighbors and came and went among them like the bees, except that she gathered seeds, slips and whole plants where the bees took only nectar. Our own strip of yard was beginning to look like Joseph's "coat of many colors." One neighbor called it a "Vaudeville Garden."

The idea amused me greatly. Where had that sombre mite heard of ragtime and footlights? Her dresses were black, her eyes large, solemn and black, and she lived behind a dense funereal hedge of cypress in which black shadows lurked even on the sunniest days. Once I had thought to penetrate the recesses of that mysterious garden of hers, but a great spotted dog barred my way. I wished the Magic Girl would not return that call; but she only laughed knowingly and invited me to go along and ward off the spooks.

Inside the hedge a sun-flecked path beckoned through a lane of bloom to a secluded verandah; but we chose a by-path that careened gaily round a corner, through another cypress hedge straight into the oddest bit of landscape gardening—so colorful, its flowers totally unrelated, yet so harmonious in ensemble! Here was vaudeville, drama and grand opera all rolled into one. It was like a huge airdome stage set for the performance. Even the strip of lawn just beyond waited for the spectators to stretch themselves, and everywhere the hum of bees like the expectant buzz of an audience before the curtain rises.

End men of the minstrels
(Photograph by A. B. Coldwell)

The Devoted Heliotrope
(Photograph by A. B. Coldwell)

"Stay right where you are!" a voice called, and our mite of a neighbor emerged from the wings, her snowy hair, divested of its widow's cap, gleaming 'gainst the background of dark-green cypress. "I want you to know my actor friends."

"That's why we came by the stage entrance," replied the Magic Girl, advancing to meet our hostess, while I, marooned on a cunningly devised rustic seat at rear center of the stage, with groups of hollyhocks and sunflowers to the right and to the left of me, felt like the interlocutor in a minstrel show. Women are all like that. They get together and talk and leave a fellow sidetracked in some conspicuous position. Luckily I had the bees for company. They had followed us and were busy stripping off and carrying away on their legs in large quantities the make-up of those selfsame "actor friends," the cheerful coreopsis, a few faithful wallflowers and stocks still blooming, and rows of presumptuous snapdragons. Judging from the noisiness of their wardrobes, the mimes had just acquired speaking parts. They were stationed in front of the minstrels, and the small black-garbed figure walked among them a very stage manager. "These remind me of actors in a stock company," she was saying, "ready for any place assigned, and enduring. Think of stocks in June!"

"It's a game she plays," whispered the Magic Girl in passing. "They're real people to her."

"Asters are the housemaids of the flower theatre, the bachelor buttons are butlers—English butlers that say 'beggin' your leave' before every remark—and the candytuft, dear little children left to the care of servants," continued the pathetic wavering voice, like a phonographic announcement of dramatis personae; "but," indicating sections of blue and purple, between which lay a rainbow patch of color, "these represent the fine and true of the stage—the plays we heard when I was a girl; heliotrope, devotion; sage, domestic virtue; and verbena, family life and prayer—unity against evil. All that actors think of now-a-days, is 'putting something over,' no matter what."

The bees evidently agreed with her as to the standby qualities of old-fashioned flowers, and numbers of them flew regularly to extract their sweets.

My thoughts wandered from such out-of-date melodrama to the tufts of red clover that had industriously wedged themselves into corners—supers and stage hands, perhaps—and to watching the bees extricate themselves from the silken skirts of the chorus girls, I'd call 'em. Did you ever see a bee entangled in the gossamer threads of a poppy? A submarine in a net has nothing on it. It backs and turns, rolls over, gets dust in its eyes, and, finally, flies away with a Zip! Bang! that is alarming to encounter. And there were so many in that chorus—and so many daring bees.

"They're the ballet," explained our Theatre Fan. (So then I had guessed it nearly right.) "They're performing the dance d'heures. The red poppies are for the long, consoling hours of morning; purple, the fantastic extravagance of full day, and white, peace of evening and slumber. One can almost hear the music, slower and fainter——"

Mesembryanthemum Floribundum, a bee on every flower

She stood in a listening attitude as though to catch the strain of some well-remembered air. I shook off an uncanny feeling. I preferred the orchestra stationed in front of the flower-actors and spreading out to the reserved lawn-space, the orthodox position for orchestras—a solid mass of pink mesembryanthenium floribundum, that took to its maternal heart all the cares and petty jealousies of the actors, and absorbed their small voices in its blare of dazzling color. That's the sort of music for me! That and the hilarious applause of the bees buzzing round each performer.

Suddenly I realized the orchestra had been playing all the time. It continued to play. It played us out of the yard and up the street to our door, with the precision and dispatch of Alexander's Ragtime Band. That's my style of theatricals, especially the getting-back-home feature. But I could see that the Magic Girl loved the ballet best.

"Was she ever an actress, or just wanted to be?" I asked.

"Her husband was a noted English actor," she returned, absently, for in the eyes of the Magic Girl still lay the shadow of the hour dance that must end alike for all.

Chico, Calif.

My neighbor's path in June (Photograph by A. B. Coldwell)

## Propolis Poisoning

By Dr. A. F. Bonney

IN the American Bee Journal for May Dr. Miller discusses poisoning by propolis, and calls for a remedy

There are many plants the pollen from which cause disorders in the human, as rag weed, which is accused of producing hay fever; poison ivy, which does cause serious irritation, and "Missouri," to whom Dr. Miller replies, has symptoms very like those produced by this plant. In the deserts of Arizona I formerly encountered a plant called locally "The Sneeze Weed," the invisible pollen from which, even at the distance of a mile or more, if there was the slightest breeze, would irritate the nasal passages to such an extent that violent sneezing followed and persisted, but there was no further trouble.

There are other plants the pollen from which causes an irritation similar to what the ivy does, but they are so rare that I am inclined to think that "Missouri" had a case of ivy poisoning through propolis gathered by the bees; however, it is very seldom that this can occur, and we may never hear of another case. As to a remedy, my experience with ivy poisoning has been rather liberal, and one of the very best remedies is a mixture of camphor and alcohol with an addition of 5 per cent of glycerine. The new U. S. P. formula for spirits of camphor must be used, made of full strength alcohol. The old formula contained 50 per cent water.

As an ounce of prevention is better than a ton of cure, in cases like this, I have prevented the Rhus poisoning (my patients were woodchoppers and others who were obliged to be in the woods) by having them smear the skin with a two and a half per cent carbolic acid (phenol) ointment. This serves a double purpose. The phenol is a powerful antiseptic, the vaseline of the ointment protects the skin.

If the camphor fails to give relief, "Missouri" might try a weak solution of sugar of lead.

Buck Grove, Ia.

# BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Honey Cake Without Eggs

1 cup of honey.
1 cup of sour milk.
1 teaspoon of soda.
1 teaspoon baking powder
2 tablespoons of shortening.
2 cups of flour.
Salt and seasoning.

Take shortening and soda, stir together thoroughly, then add milk. Add baking powder to flour. This makes a good, large cake or a fruit cake by adding fruit and spices. It fits in well in conserving food these war times.

ALMERON S. EASTMAN,
Memphis, N. Y.

---

### Dummy Hive

A 12-frame dummy hive made in a few minutes out of two 5-frame shipping cases.

The screened covers of the cases had, of course, been taken off when the bees were transferred into their regular hives, and all that remains to be done to make the dummy hive is to take off the screened bottoms also, knock off one side of each case, with the inside center cleat of each, and fasten the two cases together side by side by means of these same cleats, nailed on the outside of the case ends across the middles, so as to form handles as well as hold the the cases together. The slotted cleats on the inside of the end boards, which served to hold the bottoms of the frames in place during shipment, are to be pried off, as they take up the room of two extra frames, besides time when using the dummy. The bottom boards, with the screen removed, can be nailed on again if desired, thus completing a very light, handy holder for extra combs in the honey-house, or for use while looking over the hives in the apiary. Other sizes of shipping cases can, of course, be put together in the same manner.

MARGARET ULLMAN,
Highland Park, Ill.

### Ladies' Bee Apron and Dress Combined

It is unnecessary to get stung when we can provide against it.

One of the inconveniences for beekeeping ladies is that bees climb up into their clothes and not only give them a disagreeable feeling of insecurity, but often expose them needlessly to stings. In order to be sure of one's self one must not be under the fear of having the bees crawl up under one's clothes.

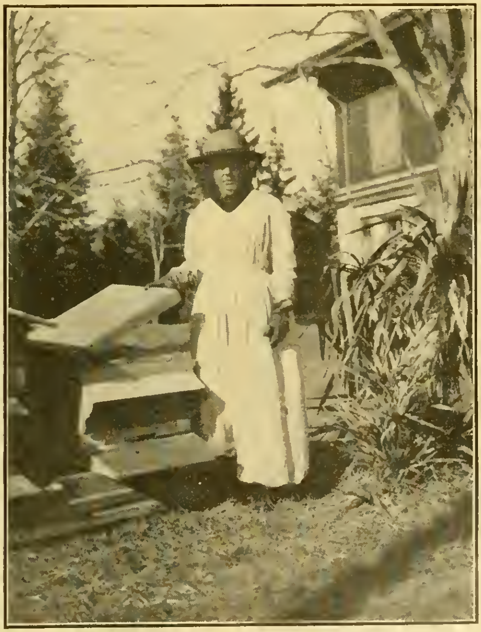
Mrs. Odier, of near Geneva, Switzerland, who helps her husband in his apiarian operations, is very sensitive to bee stings, which cause her great pains and swellings, with fever for several days. It became necessary for her to devise a practical suit which could be readily drawn over any sort of dress, with elastics, closing around high shoes, and buttoning at the wrists and neck after slipping on the veil.

The accompanying photograph will illustrate better than an explanation how to make the bee-woman's apron-dress, which has given the desired services. The idea of it was due to Miss Berliet, a French lady apiarist. It is drawn on like trousers and is buttoned up and down the front like a clown's suit. A belt around the waist keeps it in place; it is practical in preventing the indiscreet invasions of the bees and also protects positively the clothes against soiling from the wood tar or ashes of the smoker, or from honey, wax or propolis. It may be made sufficiently becoming and attractive to suit the most fastidious taste.

Firm unbleached linen of good strength is considered the best for this purpose. If it is objected that the spots made upon it by the smoker or by propolis will show readily, on the other hand, a light-colored fabric is less apt to be objectionable to the bees, who attack dark clothes more readily. A light fabric is also cooler in the sun, and this is worthy of consideration.

When a lady beekeeper has but two or three colonies to care for, she may consider a plain kitchen apron as sufficient, but one cannot be too careful. "Prevention is better than cure."

PIERRE ODIER,
Celigny, Geneva, Switzerland.



Bee dress used by a Swiss woman, Mrs. Pierre Odier, of Geneva, Switzerland

---

### Women's Help in Beekeeping

Apropos of Women's Help in Beekeeping. If only the personal pronoun of the successful beekeeper on the convention floor were **all.** But HIS honey, HIS business, and the way HE works the bees, are only symptoms. The disease itself is prevalent among beekeepers and common to other pursuits as well.

A woman is eager to help. A man takes that help as a matter of course, tolerantly if somewhat inefficient, and with hostility if she should be indiscreet enough to show too much intelligence, or if, perchance on some occasion she neglect to ask HIS advice on some minor point.

If she works too slow, she is lazy; if too rapidly, then she is trying to drive HIM; if she does her work with exquisite care, she is old-maidish, and if she puts it through in a hurry, she automatically acquires the title of a "slouch."

But woe to the woman who discovers anything whatsoever, either right or wrong, with HIS bees. Also woe to the bees. Whole colonies can perish (by starvation or disease) while waiting for HIM to make the discovery. Similarly the woman may close the entrances to weak colonies, only the next day to find them robbed out, because HE thought the bees needed more air, and that women were something of a nuisance monkeying around HIS bees.

Why should women work either for love or praise from their husbands? Why not work for the wage that is justly theirs? Or, better yet, the rich relative failing to depart this life at the psychological moment, why not appropriate a portion of the capital which (theoretically only) belongs to her by virtue of having helped HIM in its accumulation, and be an apiarist in her own right?

Perhaps (?) he would lend a helping hand occasionally, and perhaps she would be kind and well-bred, or, to sum it up in one word, JUST, and say "OUR bees."

A HELPER.

# MISCELLANEOUS NEWS ITEMS

**The Northeast Kansas Beekeepers' Association** held a very profitable field meet at the apiary of O. A. Keene, Topeka, on the afternoon of April 18, 1918. Mr. E. W. Atkins, of the Entomological Department of the Extension Department, Washington, D. C., was present and gave demonstrations in handling bees, transferring, etc., and gave an interesting talk on general management of bees. A large and enthusiastic crowd attended the meeting, showing increased interest in beekeeping.

A. R. HOCKENSMITH, Pres.

**Beekeeping at the University of Missouri.**—The Department of Entomology of the University of Missouri has been offering courses in beekeeping for the regular University students for the past five years, and during the past two years special courses have been offered for agricultural students in the short winter course. The courses have been well attended and have attracted many men and women who have had years of practical experience in handling bees. Women, as well as men, select the course in beekeeping and a number of students on completing their university course have been pushing beekeeping in their respective communities.

Missouri was one of the first States of the middle west to recognize the possibilities in beekeeping and the importance of offering fundamental instruction in beekeeping along with other agricultural courses. Missouri, with more bees than any other State in the Union except Texas, offers some unusual opportunities in beekeeping. However, the big bee problems, wintering, pasturage, etc., have as yet been scarcely touched. With an army of men and women with scientific training in beekeeping distributed over the State to co-operate with this Department, the Missouri Apicultural Society and State and Federal Extension workers, the solution of many of Missouri's bee problems will be simplified. Every Missourian who keeps bees must be reached with fundamental information on up-to-date beekeeping.

**The National.**—The National Beekeepers' Association has in the past done much for the beekeeping fraternity. In the opinion of some it has made some mistakes. Because it stands for education and extension work in beekeeping, some will not support it—selfish motives. This retards the growth of the National little compared to the indifference of the majority of the rank and file of beekeepeers who overlook what might be accomplished by a strong organization.

In these times it is not necessary to mention the benefits of organization; we see it on every hand, trade, industrial, fraternal. Even the beekeepers are waking up, owing to Government extension work, and are forming County and State associations better than before. This seems the best way to make a solid foundation for a National organization and I expect in time to see all these affiliated with the National Association.

The National has no publicity department, it is only through the courtesy of the bee journals that it is possible to reach the beekeepers. To each of you that reads this, I say: Why throw the expense and responsibility of the National work on a few when your support would make an organization that would be able to do what even the most optimistic have thought possible? Forget the past, think of the future if you wish, but remember nothing is certain but the present and the present need of the National is members. Officers of local and State associations, you could help greatly. Some State Secretaries are sending in lists of new members each week, why not you? The annual dues to the National Beekeepers' Association are $1.50 per year. To become a member it is only necessary to send this amount to the Secretary-Treasurer or pay it to your local or State Secretary, who will send it on. You will get a receipt by return mail. You will **NOT** get a year's subscription to the "Domestic Beekeeper, or any other magazine,

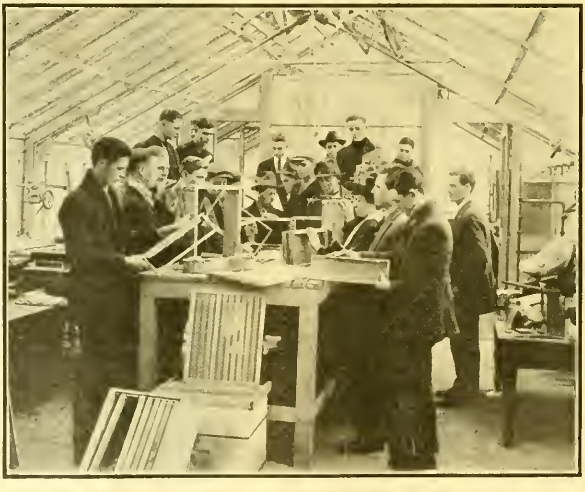


Fig. 1.—Class of agricultural short course students assembling hives and hive equipment in the insectary of the Department of Entomology, University of Missouri

included, as formerly. The National is not financially interested in any bee journal, but National members can secure, through the Secretary-Treasurer, any or all of the bee journals at 75c each per year. This offer is good for the rest of this year only. If you wish the Market News Service on honey, issued by the Bureau of Markets, direct from Washington, mention it when you send in your dues. FLOYD MARKHAM.

**Beemen to Encourage Increased Production.**—Beekeepers are quietly insuring to Wisconsin a source of sugar other than that secured from beets and sorghum cane by their encouragement of the beekeeping movement in many of the towns of Wisconsin. To further the development of the industry the following bee meetings are scheduled for June:

Wausau, June 1; Stevens Point, June 3; Grand Rapids, June 4; Marshtown, June 5; Owen, June 6; Ladysmith, June 7; Baron, June 8; Chippewa Falls, June 10; Eau Claire, June 11; Menomonie, June 12; Baldwin, June 13; Ellsworth, June 14.

G. H. Cale, a beekeeping extension agent from the United States Department of Agriculture, will attend each meeting, and will speak to Wisconsin beekeepers on the patriotic value of the industry and the latest methods of furthering the production of honey.

H. F. Wilson, of the Department of Economic Entomology of the College of Agriculture, will attend many of the meetings to lead the discussion on experiments in beekeeping out at the experiment station.

### Fermenting Honey-A Practical Result

In our number for April, 1917, page 121, the editor told of a visit at the apiary of Mr. Irving Kenyon, of Camillus, N. Y., and of the peculiar trouble experienced by this practical and wideawake beekeeper. Mr. Kenyon's honey crops were subjected to a peculiar trouble. The honey fermented in the cells and often burst the cappings, being decidedly sour. We suggested that it might be due to some peculiar blossom. But Mr. Kenyon thought it due to a microbe within the hives, perpetuating itself from year to year. The trouble was so annoying that our friend resorted to the extreme remedy of transferring all his bees to sheets of foundation, in the spring, and melting all the old combs into wax. He now writes:

"You will remember our talk about honey souring. Well, I promised to report my success this season with the shake plan as used to cure American foulbrood. I don't pretend to know the cause of this trouble, but after 15 years' experience with it I am well satisfied that it is contagious and is spread by robbing. Not having a single colony that did not not show it in 1916, this year (1917), after shaking, I saw it in less than one-fourth of one per cent of the honey. I expect to shake again this season, and think that will clean it out entirely. I believe more of this trouble is getting a foothold than beekeepers are aware of.

"IRVING KENYON,
"Camillus, N. Y."

**Preserving with Honey Instead of Sugar.**—A lecture-demonstration to be delivered in various cities of Massachusetts during May and June. (If the demand for further lectures is warranted, it may be possible to engage Mrs. Hutchinson after July 1. Requests should be made to the undersigned.)

Mrs. Mary E. Hutchinson, of Wakefield, Mass., has been engaged to speak in various cities of Massachusetts on Saturday afternoons, on methods of preserving with honey; even 100 per cent honey can be used. It is generally believed that honey will not serve in jellies, but Mrs. Hutchinson demonstrates that 100 per cent in these is practical.

Class of short course students at the University of Missouri getting practical experience in handling bees

The first lecture was given in Worcester on May 18, at Horticultural Hall, at 2:30 p. m. At this time, also, there was a regular monthly meeting of the Worcester County Beekeepers' Association, and the regularly announced meeting of the Federated Massachusetts Beekeepers' Association, Inc., as guest.

In Springfield, Mass., it is arranged for Mrs. Hutchinson to speak on June 15, in the Mahogany room of the Municipal Auditorium. This meeting will be under the auspices of the Hampshire, Hampden, Franklin Beekeepers' Association, which will convene at 2 p. m.

Mrs. Hutchinson's future engagements are subject to arrangement. Inquiry concerning them should be made to the undersigned.

Mrs. Hutchinson is not only a beekeeper, but a most practical user of honey, in preserves and in many other ways. Her suggestions, which are plain, every-day and practical, are very helpful. Since sugar is not plentiful, nor is it immediately expected to be, honey can well be substituted in preserves. It is anticipated that Mrs. Hutchinson will be found most beneficial to her audiences. These lectures are entirely free and held by arrangement of the Massachusetts Agricultural College. All interested are urged to attend.

B. N. GATES,
Amherst, Mass.

**Bee Literature in Our Local Libraries.**—Many of the public libraries of our State and nation are fully aroused to the seriousness of the food situation, and with this in mind they are making every effort possible to provide literature on all phases of the subject of Food Conservation and Food Production.

One of the food articles we are urged most earnestly by the Federal Food Administration to conserve is sugar. The best way to save sugar is to increase both the production and the consumption of honey as a substitute for sugar.

The librarians of our State have been provided with a very excellent list of the best books and pamphlets on the subject of Bees and Honey, and they have been urged to secure all of the literature included in this list. In this effort the librarians would be greatly aided and encouraged if every keeper of bees would get in touch with his local library and would aid the librarian to select and secure the best literature suitable to the community, and would then take steps to advertise the bee literature which is in the library.

A practical illustration of the excellent co-operation that can be given by beekeepers was shown at a recent Food and Garden Show in the Public Library at Dixon. At this Food Show, Mr. C. O. Engel gave a talk on the subject of sugar and honeybees. He also contributed some excellent pamphlets which he had gathered on bees and honey and made several excellent posters on the subject. This co-operation was greatly appreciated by the librarian, Miss Mary F. Wynn, and did much to arouse local interest in the literature which she had gathered in her library.

It is most earnestly hoped that those interested in this important subject will make an effort within the near future to get in touch with their local librarian and manifest by this interest an appreciation of the librarian's effort, and willingness to co-operate with the librarian in advertising this literature.

GEO A. DEVENEAU,
Library Publicity Director,
Urbana, Ill.

# LEGAL SERVICE DEPARTMENT

### Are Bees Taxable?

I am writing to enquire whether bees are taxable. They tell me they can tax my bees, as they are personal property. LOUISIANA.

In most States bees are taxable, the same as any other personal property. The exceptions are States where a specific provision of law exempts them. In Iowa the law exempts ten colonies from taxation. The Iowa Beekeepers' Association has asked that this provision be repealed, since the specialist must pay taxes on his bees while the careless man with only ten colonies does not pay any taxes. There is no apparent reason why the man who invests his money in bees should not pay taxes on the same basis as though he owned cattle instead. The same rule applies generally.

### Forcing Move of Bees

One of my neighbors has complained to the county attorney about one of my bees stinging her. They are trying to force me to move my bees. Only two swarms have clustered outside my yard in the three years I have kept them in the present location. There is no other convenient location to which I can move them. Can you tell me what to do about it? MINNESOTA.

A man has the same right to keep bees that he has with any other property. However, the public has some rights which he is bound to respect. If the bees are so situated that they are a source of danger and annoyance to the neighbors, they should be moved, otherwise not. The fact that one of the neighbors received a chance sting would probably not be sufficient cause to compel you to move, for it is very possible that there are other bees in the neighborhood, and one might get a sting even though your bees were moved away. You should build a high fence or other protection to turn the line of flight away from the highway so as to endanger those passing by as little as possible.

An occasional gift of honey to near neighbors will do much to insure the friendship of those near by and insure friends who will support you in case complaint is filed.

The beekeeper who lives in a city or town should take every possible precaution to so place his bees that they are as far as possible from walks and streets and so placed that the line of flight is above the heads of passersby.

This subject is fully discussed in chapter 10 of Productive Beekeeping.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

### European Foulbrood

I am running for extracted honey. I have been keeping bees for twenty odd years, and have never had any trouble with bee diseases up to the present season. I now have the European type of foulbrood, and have about 50 colonies diseased. Last fall (September) I prepared the bees for this season, leaving approximately 40 pounds of stores on each hive, so now there is much honey with the bees. We have some nectar coming in, but our flow will not come until later. Now, Doctor, I have heard that you know how to handle this type of brood disease, and save the combs. Will you please write me how it can be done, and at the same time not spread the disease. There are plenty of stores in the brood-chambers. I do not know what to do with these combs of honey and dead brood. CALIFORNIA.

ANSWER.—It is quite possible to save the combs affected by European foulbrood, but if the disease is American foulbrood, the combs cannot be saved. The first thing in the treatment is one of very great importance, and that is to see that the colonies to be treated are *strong*. *Generally* they are weak, and must be made strong by the addition of brood or bees, or both, even if it requires doubling up several colonies to make one strong one.

The next step is to stop the laying of eggs for a period of ten days. If the case is a severe one, the queen is practically certain to be poor, and should be killed. Even if the case is a mild one, and the queen is poor, kill her, and plan to have another queen laying in her place ten days later. You can do this by giving a ripe queen-cell or a virgin just hatched, giving it at the time you kill the queen; or you may give a young laying queen ten days after killing the old one.

In any case, the cell, virgin, or laying queen should be of best Italian stock, for it is generally agreed that such stock is better to combat the disease than blacks or hybrids.

If the case is a mild one, with a good queen, merely cage her in the hive for ten days, and then free her.

The old combs of honey and brood are to be used just as if they were not affected, for the chances are not great that the disease will reappear, but I should not want to use such combs in perfectly healthy colonies, for there is a chance they might introduce the disease.

To sum up, make your colonies *strong*, stop egg-laying for ten days, and see that at the end of the ten days each colony has a laying queen of best Italian stock. You may count pretty safely on the success of such treatment, simply treat it over again.

### Swarm Prevention

How will the following do for swarming colonies? I am working for comb honey.

Set a hive filled with sheets of foundation and one comb of brood on the old stand, shake most of the bees and the queen into this, leave only enough bees to care for the brood in the old hive. Now put the comb-honey supers on the new hive, on top of the supers put a frame with mosquito netting, in the center of which is a Porter bee-escape; on top of this the old hive with brood and bees, the cells being cut out as fast as the brood hatches. The bees trying to get out cannot go back, so the swarm will get all the young bees, and it will be in almost as good a condition as if it had not swarmed, except the building of combs. I don't know if it has been tried; most likely so, but I never saw it in the papers. INDIANA.

ANSWER.—The bees will make short work of tearing out the netting, and even if they didn't they would carry down black bits of comb from above to darken the cappings of the sections.

### Foulbrood

From what I read, the foulbrood is not in the new nectar coming in, so it must lie between the queen and the nurses, presumably the queen.

Now, Doctor, is this disease caused by inbreeding? If so, would it not be a good plan to requeen every two years with Italian queens?

The black or native bees seem to have the disease the worst, so I have about convinced myself that it is caused by too close breeding. CALIFORNIA.

ANSWER.—No, the disease is not in the nectar. If you should change the queen of a diseased colony without for a minute stopping the egg-laying, the disease would continue. So you can hardly lay it to the queen. If you give a comb of diseased brood to a set of the best nurse-bees in the world, you may confidently expect the disease to spread itself cheerfully through the hive. So it would hardly be just to say that the fault was due to the wrong kind of nurses. No, the real culprit is a measly little beast of a microbe that is fed to the larvæ.

The worst case of inbreeding in the world will not result in foulbrood, unless that fatal microbe be fed to the babies; so changing the queen would not be the thing unless it should be that the change should bring more vigorous and resistant stock; and in that respect a change of queen might be important.

## Drone-Cells—Brood

1. I understand that drone-cells are preferred by bees for storing honey, for the reason, as I suppose, that such cells permit easier ingress and egress and require less wax and labor to produce for a given area. Why, then, should not we use drone-comb for storage purposes for extracting?

2. Is the spreading of brood to be recommended in building up a colony? If not, why?

CANADA.

Answers.—1. I'm not so sure about bees preferring drone-cells for storing honey. I know they prefer them at times for rearing drone-brood, and I've known them sometimes to go a little outside the brood-nest for the sake of rearing drone-brood. I don't think I ever knew them to go out of their way to store honey in drone-cells. I don't know, however, that there's any objection to having drone-comb in the extracting chamber, unless it be that sometimes bees are a little slow about filling honey in drone-cells, perhaps holding them open with the idea of having the queen lay in them.

(We much prefer worker comb to drone comb in the contracting super, as the queen sometimes gets into the super and might produce a large number of drones.—Editor.)

2. Some advocate and practice it. I haven't practiced it for many years, because there's too much danger of chilling brood. Besides, I'm not sure I gain anything by it, since of their own accord the bees start all the brood they can cover, and why should you want any more?

## Swarming—Kinds of Queens

1. Is it better to let the first swarm come out, or to brush them by the brushed swarm plan?

2. Will there be any other natural swarms come out after the first natural swarm? If so, should it be prevented?

3. Why can more honey be produced by extracting than by running for comb honey? What is the usual price of pure extracted honey?

4. What is the difference between tested and untested queens? Is it that tested queens are mated and untested ones are not?

KANSAS.

Answers.—1. If it be convenient for you to watch for the swarm, especially if you have not much experience, it is better to let the bees swarm naturally.

2. One or more afterswarms are likely to issue, and this should be prevented. When the prime swarm issues, hive it and set it in place of the old hive, setting the old hive close beside it, facing the same way. A week later move the old hive to a new stand 10 feet or more distant. There should be no more swarming.

3. The bees don't have to build fresh comb every time they store extracted honey. The usual price for extracted honey has been somewhere about 10 or 12 cents; now it is nearer 20 cents.

4. Tested and untested queens are both mated; untested are those which are sold before their young bees have hatched out, and it cannot be told whether they are purely mated or not; tested are those whose young workers show by their markings that they are purely mated.

## European Foulbrood

1. Will zero weather kill germs of European foulbrood?

2. Will it be safe to feed sealed frames of honey taken out of foulbrood hive, although these frames have had no foulbrood in them?

3. Is there danger of foulbrood appearing in spring if all brood has been removed from hives in fall and sealed frames of honey put in their place?

4. Will it be necessary to boil chaff cushions and cloths used on foulbrood hives?

VERMONT.

Answers.—1. No.

2. I think there is no danger in feeding frames of honey that have had no brood in them, if the foulbrood is European, but would hardly want to risk it in case of American.

3. That treatment was recommended for American foulbrood by the late W. E. McEvoy, and, so far as I know, the treatment is reliable. Just take away all combs after brood-rearing has ceased in the fall, and give combs of sealed honey from healthy colonies.

4. I think not.

## Failure in Wintering

In May, 1917, I bought two hives of Italian bees (Nos. 1 and 2), Langstroth 10-frames, to begin with. Everything went well. July 14 I caught a swarm (No. 3) out of hive No. 1; July 16 a swarm left hive No. 2, but I could not get it, having entered into a hollow of an oak tree about 40 feet above ground, and it is not advisable for one 65 years old to get so high into the air. A second swarm out of hive No. 1 followed those absconders on July 18, however. I had the chance to catch another swarm out of hive No. 2 on the same date. That gave me four hives (old) No. 1 and 2 (new) No. 3 and 4, and I thought to be on the road to ssuccess. My good friends seemed to be happy and I did not disturb them except during the flow, when I took out some filled frames from hives Nos. 1 and 2 for storage. October 25 I opened hives again; found Nos. 1 and 2 in very good condition—plenty of bees and honey for winter food. Hive No. 3, plenty of bees but apparently not enough honey; so I gave them two full frames of honey out of above stores. Hive No. 4, not so many bees and honey; so I also gave them two full frames of honey. November 16 I placed all four hives in a shed with hinged roof, located on a terrace of a hill sloping south. I placed one foot of marsh hay on the wooden floor, then boards over that, and the four hives on this, close together. The bees kept flying until cold weather came. I then placed cushions filled with chaff around the sides and backs of hives, Alexander feeder under hives 3 and 4 and some hay over the hives. Before this I had put on top of each hive a queen-excluding board, then a piece of woolen carpet and thereon the cover. also contracted hive No. 4 with division board and placed some woolen carpet between the walls of the hive, The entrances of hives I closed with wire netting, 3 meshes to one inch, and then I placed the entrance blocks in front of this, leaving an opening of ⅜ inch. When the thermometer dropped to 12 and 20 below, I covered the hive with marsh hay on north and west sides. Then nature put two feet of snow on all this protection. I kept the entrance clear of snow by placing a slanting platform in front of each hive.

February 24, as the thermometer showed 65 degrees above at noon, I opened the entrances of the hive, taking away the blocks, and a few bees came out of hives Nos. 1, 2 and 3; they also carried a good many dead bees. Hive No. 4 didn't move up, in spite of my knocking. I then closed the entrances again with the blocks as before.

March 18, noon 68 degrees, I opened the roof of shed, took off the covers from the hives and found that bees in all four hives were dead.

The bees were in clusters between the frames; also in hive No. 2, on top of the frames. There was plenty of food in hives 1, 2 and 3, and even a little left in hive No. 4,

Can you tell me what the trouble was? Did I close entrances too tight, or should I have placed a super on top of the hives?

What would you advise to do to restock my hives? Buy bees by the pound, with queen, or nuclei? would you place bees into hives just like new swarms, or must you place queen separately into hive, and where, on top, or under frames?

WISCONSIN.

Answer.—It is not a very safe thing to make a guess about bees in all cases, but I don't believe I can be far out of the way in saying that the fatal thing in your program was reducing the entrance to three-eighths of an inch square. At the very least the opening should have been eight times as large.

If you cannot buy bees near home, and have to send south, it will probably be better for you to get combless bees by the pound, say in 2-pound packages with a queen in each package. A good way is to put the package of bees inside the hive beside the combs, allowing the bees to go upon the combs gradually, keeping the queen caged for a day or so.

(Bees by the pound are hard to get now. Better buy some swarms in your vicinity if you can.—Editor.)

## Swarm Prevention

1. In destroying queen-cells to prevent swarming, how are we to determine whether the cell in question is to produce a queen to take charge of the hive, when the old queen goes out with a swarm, or whether it is a case of superseding?

2. How successful is the entrance guards as a preventive of swarming? Have you any objections to it?

IDAHO.

Answers. 1. No one can tell by looking at a queen-cell whether it is intended for swarming or superseding. Moreover, so far as we can judge the mind of a colony of bees, it sometimes changes its mind, and what was in the first place intended for swarming turns out to be superseding, and vice versa. We can, however, make a pretty fair guess at the intention of the bees by attending circumstances. If swarming is intended, there will be a larger number of cells started than for superseding. There is no positive certainty as to the number for either, but if only 2 or 3, or even 5 or 6 are present, superseding is likely to be the program; whereas, for swarming there are seldom less than ten or a dozen, and it may run away beyond that. If cells are found at what is usually swarming time, or when other colonies are swarming, the probabilities are in favor of swarming; whereas, before and after swarming time, and at any time when little or no nectar is coming in, then it's a fair guess that superseding is intended.

2. A queen-excluder at the entrance does not in the least prevent swarming. The bees are just as sure to swarm with as without one. But it will hold the queen, and when the swarm finds the queen is left behind, it will return, and the beekeeper who is away from home when the swarm issues can do whatever is needed to be done at his convenience in the evening, or in the next few days. But if the colony is left without attention, in the course of a week or ten days, the first young queen will emerge, the bees will continue swarming and returning, and after sufficient time the old queen having been put out of the way, the young queen will begin laying without mating, producing only drones, and the colony is doomed. Except as mentioned, I would not think of trying to prevent swarming by any attachment at the entrance.

## Hybrid or Italian Stock

On page 135, American Bee Journal, Kansas says he has a hybrid queen that produces pure Italian drones. I thought that I had learned that according to Dzierzon the drone is without paternal parentage, that a black queen mated with an Italian drone produced pure black drones, but mixed workers and queens. Having recently lost all my bee literature, together with my house and contents, by fire, I have nothing to refer to. But, Doctor, speak low, so P. C Chadwick doesn't hear, because if I am mistaken I just know he will laugh.

MICHIGAN.

Answer.—You are right that a black queen mated with an Italian drone produces pure black drones, also an Italian queen mated with a black drone produces pure Italian drones. Kansas says his hybrid queen produces pure Italian drones. Possibly you may say that a hybrid queen should produce hybrid drones. So she should if she contains mixed blood herself. But Kansas may say that no matter how pure the Italian blood in a queen, if she meets a black or hybrid drone, she cannot be sold for a pure Italian queen, and a hybrid queen of that sort will produce pure Italian drones. Fight it out yourselves.

# Classified Department

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

## BEES AND QUEENS

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease.
Wilmer Clarke, Earlville, Madison Co., N.Y.

FOR SALE—Italian queens from best stock; produce gentle, excellent honey gatherers; very prolific and unexcelled winterers; untested, 90c; 12 for $10; tested, $1.30; select tested, $1.75; extra select tested, $2.50; breeders, $5; pound packages, per lb., $1.50; nuclei, per frame, $1.50. Add price of queen wanted. Prompt deliveries. Special prices in quantities.
Golden Queen Apiaries,
R. Kornegay, Jr., Mgr., Mt. Olive, N. C.

OUR BRIGHT ITALIAN QUEENS will be ready to ship after April 15. Untested, 75c each, $8 per doz., or $65 per 100. Safe arrival guaranteed.
Tillery Bros., Georgiana, Ala., Route 5.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDEN Italian Queens, untested queens, $1 each; six, $4.25; $8.25 per doz., 50, $32.50; $60 per 100. Tested queen, $1.50; one frame nucleus, no queen, $1.25; 2-frame, $2.25; 3-frame, $3; breeders, $5 and $10.
L. J. Dunn, 54 Broadway Ave., San Jose, Cal.

OUR select bred mated queens winter well.
Honeymoon Apiaries, Yakima, Wash.

FOR SALE—Warranted queens from one of Dr. Miller's breeders, $1 each; $10 per doz.; tested, $1.50 each; 2-frame nuclui without queen, $3; 3-frame $4.50; add price of queen if desired. Full colonies, 10-frame, $10; 8-frame, $9; in Danz. hives $8 each; tested queens in all colonies. We are sold out of package bees. Our yards are free from disease.
Geo. A. Hummer & Son,
Prairie Point, Miss.

FOR SALE—3-banded Italian queens, 55c; ten, $5. Circular free.
O. C Wandrie,
Frazee, Minn.

FOR SALE—Pure Italian queens; goldens that are golden, and Doolittle's choice stock. Select untested (laying queens), 1, $1; 6, $5. tested, $1.50; best breeders, $5. For large lots write for prices. Pure mating, safe arrival and satisfaction I guarantee.
J. E. Wing,
155 Schiele Ave., San Jose, Calif.

FOR SALE—Golden Italian queens that produce good honey gatherers; no foulbrood; select tested, $1.50; tested, $1.25; untested, 85c; 6, $4.75; 12, $9. After July 1, select tested, $1.25; tested, $1; untested, 75c; 6, $4.25; 12, $8. No bees for sale.
D. T. Gaster,
R. 2, Randleman, N. C.

FOR SALE—Three-banded Italian queens; untested, one, $1; six, $5; twelve, $9. Tested queens, $1.50 each.
Rob't B. Spicer,
Wharton, N. J.

PURE 3-banded Italian queens, as good as you can buy with money; no disease, and every one guaranteed. Write for prices. No more nuclei or colonies for sale this season.
J. F. Diemer, Liberty, Mo.

FOR SALE Italian queens; untested, $1, or $10 per dozen. No discounts on quantity orders. Satisfaction guaranteed.
M. Bates, Greenville, Ala., R. 4.

NORTHERN BRED ITALIAN QUEENS—Ready May 1, each, $1; six, $5.
Allen R. Simmons, Claverack, N. Y.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
Garden City Apiaries,
San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
H. G. Dunn,
The Willows, San Jose, Calif.

QUEENS BY RETURN MAIL—Choice tested queens, reared last fall and wintered in 4-frame nuclei, $1.25; $14 per doz. Queens of this season's rearing, untested, $1; $9 per doz. We breed the 3-band Italians only and our strain is known for gentleness and honey gathering qualities. Every queen guaranteed. Never a case of foulbrood in our apiaries.
J. W. K. Shaw & Co., Loreauville, La.

FOR SALE—Fine Italian queens at 90c each, $9 per doz. Ready April 15. Safe arrival guaranteed.
T. J. Talley, Route 3, Greenville, Ala.

BOTH Italians and hybrid bees at $2.50 per pound with untested queen; 2 pounds, with queen, at $4.
Mrs. T. H. Carruth, Big Bend, La.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln, Ill.

THE Sinking Creek Queen Introducing Cage; 5 years' test of absolute success; indispensable for introduction of valuable queens; also several queens can be kept in one hive in perfect harmony; small and works on the brood comb; especially adapted for queen breeders. Price 60c per doz., 2 doz. for $1; post paid. Sinking Creek Apiaries, Gimlet, Ky.

SWARTS GOLDEN QUEENS produce golden bees of the highest qualities; satisfaction guaranteed. Mated $1, 6 for $5; tested $2.
D. L. Swarts, Lancaster, O., Rt. 2.

FINEST ITALIAN QUEENS, June 1 to November, $1 each; 6 for $5. My circular gives safe methods; free. J. W. Romberger,
3113 Locust St., St. Joseph, Mo.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed.
O. D. Rivers,
Route 4, Honey Grove, Texas.

FOR SALE—3-banded Italians; queens from best honey-gathering obtainable. Untested queens, $1 each; 6, $5; 12, $9. Safe arrival and satisfaction guaranteed.
W. T. Purdue, Ft. Deposit, Ala.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolians. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo Leon Co., Tex.

THREE-Banded and Golden Italian Queens and pound packages in spring, from the Sunny Southland.
Grant Anderson,
Rio Hondo, Texas.

THREE-BANDED Italians; untested queens in April and May, one, $1; 6, $5; 12, $9. Tested, $1.50 each One-pound packages of bees, $1.50 each; two-pound packages, $2.50 each. Add price of queens if wanted. If you want as many as 50 packages write for prices and discounts on early orders. Safe arrival and satisfaction guaranteed. No disease, and all queens purely mated.
Cotton Belt Apiaries, Box 83, Roxton, Texas.

SELECT bred, mated queens, $1 each, prepaid. Bred from the selected stock of eleven yards totaling over 1,500 colonies of bees run for commercial honey production. Only one grade of queens—no culls sold, $10 per dozen, prepaid.
Honeymoon Apiaries,
402 N. Fifth Ave., Yakima, Wash.

## HONEY AND BEESWAX

CASH paid at your bank for carlots and less, of comb and extracted honey.
Wesley Foster, Boulder, Colo.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa, Monroe, Wis.

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

WANTED—Beeswax at all times in any quantity, for cash or in exchange for supplies.
Dadant & Sons, Hamilton, Ill.

WAR SAVINGS STAMPS DELIVERED TO YOUR HOME

**Tear Out—Fill In—Hand Letter-Carrier—or Mail to Post Office**

TO THE LOCAL POSTMASTER:—Kindly have letter-carrier deliver to me on ______ (Da. ) for which I will pay on delivery:

______ (State number wanted) $5. U. S. WAR-SAVINGS STAMPS at $______ (See prices below) each

______ (State number wanted) 25c. U. S. THRIFT STAMPS at 25c. each.

Name ______

Address ______

W.S.S.
WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

W. S. S. COST DURING 1918

| | | | | | |
|---|---|---|---|---|---|
| April | $4.15 | July | $4.18 | Oct. | $4.21 |
| May | 4.16 | Aug. | 4.19 | Nov. | 4.22 |
| June | 4.17 | Sept. | 4.20 | Dec. | 4.23 |

W. S. S. WORTH $5.00 JANUARY 1. 1923

## SUPPLIES

I have sold my bees and have a 4-frame automatic Root extractor for sale, good as new, for $35. Also 1,000 combs that will work in the Standard hive; will take 12½c each for them.
C. J. Barber,
Smithland, Woodbury Co., Ia.

FOR SALE—Surplus equipment, 40 unbound, 10-frame zinc excluders, 14 bound zinc 8-frame queen excluders, at 30c each; old-fashioned bevel edge 10-frame hives with metal covers, painted, complete with top and bottom but no frames, $1 each, with ten drawn combs, $2.60 each; large size solar wax extractor, old but painted and in good condition, $4; queen mating hives used by J. L. Strong, at your own price; 45 small Alexander feeders for nuclei, at $4 for the lot.
Frank C. Pellett, Atlantic, Iowa.

CLOSING OUT—Entire stock of bee supplies; send bill of goods needed for my prices; no catalogue. A few No. 2 4x5 sections, $4 per 1,000.
H. S. Duby, St. Anne, Ill.

FOR SALE—One thousand beehives with supers; three-fourth dovetailed, balance halved together at corners and nailed both ways. Hoffman frames throughout. We will guarantee them to be sound and free from disease. Will sell all or any part at about half what new hives will cost. Apply to The Hyde Bee Co.,
Floresville, Texas.

## WANTED

WANTED—4-frame honey extractor, comb pockets 12 inches wide.
Allenville Apiaries, Allenville, Ala.

WANTED—May, October and November, 1917, numbers of American Bee Journal and January, 1918, that are in good condition; will pay 10c each. Please mail carefully so the wrapper covers the entire journal.
American Bee Journal.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Second-hand honey extractors; tell me what you have and price; also wax presses.
W. D. Soper, Jackson, Mich.
Dealer in all kinds of Bee Supplies.

## SITUATIONS

WANTED—Reliable, energetic and alert beekeeper, or student helper, in largest series of outapiaries in northwest. Work for extracted honey and all equipment and methods strictly modern. Give age, height, weight, experience, references and wages expected in first letter.
The Hoffman Apiaries, Janesville, Minn.

**"Practical Queen-Rearing"**

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointer in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.

(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

**More Profit in Bees**

If you get your supplies early enough to have everything ready for the honey flow. Get your supplies NOW. Catalog FREE.

MADE RIGHT
BEE SUPPLIES
*Quality ... Service*

**THE KRETCHMER MFG. CO.**
**301 Eleventh Avenue**
**Dept. A** **COUNCIL BLUFFS, IOWA**

**Mr. Beekeeper:**

Increase your honey crop by giving the bees all the super room that they can fill.

We will help you by furnishing you with fixtures ready for use, at the lowest prices.

Hives and supers, nailed and painted; frames, wired and filled with full sheets of foundation; sections, filled with foundation, can be shipped on short notice.

The LEWIS LINE is in the lead with the live honey producers.

**WESTERN HONEY PRODUCERS**
**Wholesale and Retail Distributors**
**SIOUX CITY, IOWA**

SITUATION WANTED—Experienced beekeeper, over military age, wants work in an American apiary. Address
Box 57, Blencoe, Iowa.

WANTED — Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

## FOR SALE

FOR SALE—Surplus equipment, 6 2-story 8-frame dovetailed hives for extracted honey, nearly new, each with 16 drawn combs, at $6 each; 7 Buckeye double-walled hives, painted, nearly new, each with ten drawn combs, at $4.50 each; ten Champion double-walled hives, new, complete with ten drawn combs, each $5; no disease. Also several hundred surplus combs built on full sheets of foundation in wired frames, some Hoffman, some loose hanging, at bargain prices. If interested in new Root power-driven 4-frame extractor, Peterson capping melter or honey tanks, write.
Frank C. Pellett, Atlantic, Iowa.

FOR SALE—Full-depth 10-frame bodies filled with full-drawn combs, $2 each. Ideal supers, 5 11-16 inches deep, 10-frame full drawn combs, $1.25 each. The Hyde Bee Company,
Floresville, Tex.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling.
W. M. Penrod, Ronneby, Minn.

## Texas Queens

No more bees in packages, but queens galore from June 1 to October 1. Untested, 75c each, $8 per doz.; tested, $1.25 each, $12 per doz. I have the Three-banded Italians and Golden Italians; very choice stock.

GRANT ANDERSON,
Rio Hondo, Texas.

*"Griggs Saves You Freight"*

## TOLEDO, O.

Say, Mr. Bee Man, have you placed that order for supplies yet? If not, remember we not only save you freight, but time and money as well.

**DELAYS ARE DANGEROUS**

But don't delay, as Railway Embargoes are all the rage now, and you may be caught.

**LARGE NEW STOCK ON HAND**

All ready to ship out, direct from ROOT'S, who know how to make good goods.

**HONEY AND BEESWAX**

Always wanted; cash or in trade. Send for FREE CATALOG.

**S. J. GRIGGS & COMPANY**
**Department No. 24** **Toledo, Ohio**

*"Griggs Saves You Freight"*

# BEEKEEPERS

**KEEP IN TOUCH WITH**

# Leutzinger & Lane

**236-238 Drumm St.**
**SAN FRANCISCO, CALIF.**

**Buyers of EXTRACTED and COMB HONEY**

**Shippers and Exporters of HONEY**

**[ The WORLD is Our Market ]**

## QUEENS Hardy, Long Lived and Disease Resisting QUEENS

**Twenty-Two Years of Select Breeding Gives Us Queens of Highest Quality -- Queens for Honey Production -- Queens of Unusual Vitality**

*"There are few Queens their equal and none better."*

**WHAT BEES DO, HEADED BY OUR QUEENS**

"One swarm made 185 sections of honey and another 296 sections. I am well pleased."—MELVIN WYSONG, Kimmell, Ind.

"Your bees averaged 150 pounds of surplus honey each. I find them not only hustlers, but gentle."—FRED H. MAY, Meredosia, Ill.

"I have tried queens from several different places and like yours best of all."—C. O. BOARD, Alabama, N. Y.

"We are only one mile from Lake Erie and exposed to high, cold winds; in fact, this is the windiest place along the great lakes. Your bees were able to stand the winter with only an insignificant loss, and we would have no others. As for honey, they averaged 175 pounds of extracted surplus, did not swarm, and gave an artificial increase of 30 per cent, which is as fine a record as can be had in this locality, especially when the work is done entirely by amateurs." Name furnished on request. North East, Pa.

**Price List of Our Golden and Three-Banded Italian Queens**

| | | | |
|---|---|---|---|
| Untested | $1.00; 25 or more, $ .90 each | Select untested | $1.10; 25 or more, $1.00 each |
| Tested | 1.50; 25 or more, 1.40 each | Select tested | 1.75; 25 or more, 1.60 each |

We guarantee safe arrival of all Queens, that they are very resistaot to European foulbrood, and, in fact, will give complete satisfaction. Wings clipped free of charge. Our capacity is 2,000 Queens monthly.

**M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.**

# Crop Report and Market Conditions

In our report for this month we have taken advantage also of the May report of the Department of Agriculture which had to do with the losses, causes, condition of bees and condition of honey plants.

Of our reporters we asked the following questions:

1. Condition of bees?
2. Number of productive colonies as compared to 1917?
3. Condition of honey plants?
4. Outlook for crop compared to 1917.
5. Prices offered for honey?
6. Honey sold and at what price?

### Condition of Bees

The Department Report gives the loss of bees as about 19%, which is higher than usual. Our reporters in almost all instances agree that the bees are hardly up to normal for this season of the year, though they are coming along rapidly. In the East they are behind the average, as is also the case in the central and north central States. Minnesota and parts of Michigan and Wisconsin are above the normal, as is most of Kansas.

The whole South is still under extra good conditions, though some reports are that the crop, so far, is not up to 1917. Texas, which has had two very unfavorable seasons, now reports the bees building up fast and that at last there are some prospects that there may be something to offset the small crops of the last two years.

In the whole of the West condition of bees is fair to good.

The summary of the Department is that condition of bees is about 86% of average and a little less than a year ago.

### Number of Colonies

In spite of the large increase last year and of the large increase being made this spring, it is doubtful if there will be as many bees for the crop as in 1917, though the non-productive colonies changed into productive ones may bring the average up somewhat.

In all the territory east of the Mississippi and north of the Ohio there was but one report that claimed more bees than a year ago, most reports showing from 60 to 85 per cent as many.

The South shows, roughly, about 25% more bees than a year ago, and in the Rocky Mountain region there are a few more than in 1917 with about normal for California.

Again, the Department report shows 89% as many bees as May 1, a year ago, but the large amount of package increase, etc., since may make up a part of this loss.

### Honey Plant Conditions

In the New England States plant conditions are fine, with a regret from some that there will not be the bees to gather the honey there should be.

Ohio and Indiana are average, as are also Michigan and Minnesota, with parts of Wisconsin, Illinois and most of Iowa and Michigan showing poor prospects, on account of the lack of white clover.

In the whole South plant conditions are fine and Texas generally is rejoicing over the prospects as compared with a year ago. The mesquite flow promises to be good. West Texas, however, reports poor prospects as compared to a year ago, and New Mexico may hardly be up to normal.

It is too early yet to judge of conditions in the Rocky Mountain region, although expectations are that plants will be normal except in Idaho, where it is hardly expected that the extremely favorable season of 1917 will be equalled.

California will do well if the plants range up to 1917, though in some parts they are much better.

### Crop Prospects

Practically all regions except parts of Illinois, Wisconsin, most of Missouri and Iowa, West Texas and other scattered sections, claim that there will be a better average than a year ago, if the weather is favorable from now on. Many claims that the crop might be short if the drought were continued have been dispelled by bountiful rains since their reports were sent in.

The Department report shows plant conditions as being 87% as against 82% on the same date last year, but still far from the average of 92% over a series of five years. Conditions should improve, however, before the next Department report comes out.

### Honey Offers

A year ago the beekeepers were being flooded with offers for their crop in advance. This year the offers are comparatively scarce, except for honey actually in hand. This is likely due to two causes. In the first place, beekeepers are not so keen to contract, but are waiting to get what price they can when the crop becomes available.

Secondly, the exportations of honey depend largely upon the availability of shipping space. We know of one offer being made by a foreign company for three or four cars of white extracted at around 20 cents f. o. b. steamer. This places the responsibility upon the shipper of finding space for his product before it can be sold.

Even though very little exportation should be made, the price of honey should still rule high, owing to the excessive demand for sweets at home.

Some offers made are as follows:

New York, 17c for white extracted.

Illinois, 15c for white extracted.

Alabama, 17c for extracted, immediate delivery.

Colorado offers from 12 to 15 cents on extracted.

Idaho, one offer of $3 per case for comb.

California offers on extracted ranging as follows: 12½, 13, 14, 15, 16½, 13, 15 cents.

Another series of offers are being made at a stipulated market price at the time the honey is available for shipment, such price to be governed by prevailing price on same size lots.

### Honey Sales

Four cars of Texas honey have been sold at 17 to 17½ cents One sale has been made ahead in California at 12 cents for all extracted, and many more rumors of reported sales at a like price were sent in. Generally, the beekeepers are less inclined to sell than a year ago, and rightly so.

Nearly all beekeepers think that their honey should be worth at least 17 cents f. o. b. their station for white, and at least $4.50 per case for comb.

On the basis of past performances and with the expectation that shipping space will be easier to obtain as time goes on, is there any reason to doubt that producers will be able to obtain the prices as suggested above?

---

**An Illinois Field Meet.**—On Saturday, June 29, there will be held in the large grove of O. S. Biggs, at San Jose, Ill., a beekeepers' picnic and field meet. It will be held under the auspices of the Illinois River Valley Beekeepers' Association, who have extended an invitation to everyone possible to be present. Dr. Phillips has consented to attend.

---

**Colorado Meet.**—The Colorado Honey Producers' Association will hold a field meet and basket picnic at Longmont, Colo., Saturday, June 15, at 10 a. m. All interested in bee culture are invited to attend.

**The New Jersey Beekeepers' Association** will hold a Field Day in the apiary of G. Fred Jordy, one mile north of Flemington, on Wednesday, June 12, 1918. The program will consist of demonstrations by experts, such as grafting queen-cells, quick method of transferring, etc. Come; bring your lunch.

E. G. CARR, Sec.-Treas.

**Statement of the Ownership, Management, Circulation, Etc.,** required by the Act of Congress of August 24, 1912, of **American Bee Journal,** published monthly at Hamilton, Illinois, for April, 1918:

STATE OF ILLINOIS, } ss.
COUNTY OF HANCOCK, }

Before me, a Notary Public in, and for the State and county aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Managing Editor of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, American Bee Journal, Hamilton, Ill.
Editor, C. P. Dadant, Hamilton, Ill.
Managing Editor, M. G. Dadant, Hamilton, Ill.
Business Manager, V. M. Dadant, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, or other securities, are: None.

(Signed) M. G. DADANT.

Sworn to and subscribed before me this 4th day of April, 1918.

H. M. CUERDEN.

My commission expires August 25, 1921.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item,** a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping,** or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## QUINN'S QUEENS OF QUALITY

Have no superiors—"There's a reason." Are Mendelian bred, good qualities accentuated. Gray Carniolans, Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease resistant, white comb builders—they deliver the goods.

ITALIANS, 3-banded, line bred, pedigreed; need no boosting; they speak for themselves. Prices on application at either apiary.

**CHAS. W. QUINN**

Rt. 1, Box 319
Houston, Texas

Box 275
Ft. Myers, Florida

## Attention Eastern Beekeepers

**WE HAVE A COMPLETE STOCK OF**

**Lewis Beeware and Dadant Foundation**

Five and ten-lb. pails, also five-gallon cans and glass jars.

Queens, three-banded and golden Italian, ready for delivery now. Untested, $1 each; six for $5.50; twelve for $10. Tested, $2; six for $10.

Safe delivery guaranteed, dead queens being replaced upon their return.

**THE DEROY TAYLOR CO.**
**Newark, New York**

## Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**No Nuclei or Bees by Pound.**

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

## Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**

**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# Federal Farm Loan Bonds
## Supply Funds To Finance Farmers
### *The First Year's Work*

**The bond of the Federal Loan System should command the attention of all investors.**

The Federal Farm Loan System is the one agency of the United States Government which will bring to America month by month, year by year, and decade by decade through all the future a highgrade security, issued for the purpose of carrying out a great national agricultural policy.

The whole world looks for salvation to the American farmer.

The American farmer looks for financial help to the Federal Farm Loan System.

The Federal Farm Loan System seeks to enlist the wise investor in its movement to finance the farmer safely, soundly and conservatively, and thus save the world.

There are twelve regional Federal Land Banks, all operated under the inspection, examination and control of the Federal Farm Loan Board, a bureau of the Treasury Department at Washington.

The first of these banks to be organized received its charter March 1, 1917. Others were chartered immediately afterward. The farmers borrow through national farm loan associations. The first of these associations received its charter on March 27, 1917.

On March 31, 1918, associations had been formed to the number of 2808, or about four associations to every five counties in the United States.

About 56,000 farmers had joined these associations for the purpose of borrowing money on farm mortgages.

Loans amounting to over $160,000,000 had been approved by the banks and on over 30,000 of these loans money had been paid to the farmers to the amount of about $80,000,000.

And since March 31st the work has gone on—new associations have been organized; new applications have been made; new bond issues have been authorized.

And it will go on forever. So long as investors will buy Federal Farm Loan Bonds, and so long as farmers need money and can give security this work will go on. It is a mighty movement to put farming on a better financial basis. You can enlist in it to your own profit and to the good of the Nation by buying Federal Farm Loan Bonds.

Federal Farm Loan Bonds bear 5 per cent interest, payable semiannually, May and November, and in the language of the Federal Farm Loan Act, "shall be deemed and held to be instrumentalities of the Government of the United States, and as such they and the income derived therefrom shall be exempt from Federal, State, Munipical and local taxation." It will be noted that this exemption is complete. Interest on these bonds need not be included in income tax returns.

Such exemption from taxation in a five per cent bond constitutes an advantage hitherto unknown in American investments. These bonds are issued in denominations of $25, $50, $100, $500 and $1,000, and in either coupon or registered form. They are due in 20 years and redeemable after 5 years.

Federal Farm Loan Bonds are printed in the Bureau of Engraving and Printing in Washington, and have the same protection against counterfeiting that is enjoyed by the currency in your pocketbook.

In the language of the Farm Loan Act, Federal Farm Loan Bonds "shall be a lawful investment for all fiduciary and trust funds and may be accepted as security for all public deposits." You can offer your banker no better collateral.

You can buy Federal Farm Loan Bonds at 101 and accrued interest. Order through any bank, trust company, broker or express agent, or write to any of the twelve Federal Land Banks:

Springfield, Mass.
Baltimore, Md.
Columbia, S. C.
Louisville, Ky.
New Orleans, La.
St. Louis, Mo.
St. Paul, Minn.
Omaha, Neb.
Wichita, Kans.
Houston, Texas
Berkeley, Cal.
Spokane, Wash.

Buy
Federal Farm-Loan
Bonds

This space contributed by
AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

*or address:*
FEDERAL FARM LOAN BOARD
Treasury Department,
Washington, D. C.

# The Domestic Beekeeper

## AT HALF PRICE

There are many readers of **American Bee Journal** who have never taken the **Domestic Beekeeper,** consequently, do not know what we are doing for our subscribers. Here is our special offer: The price of the **Domestic Beekeeper** is $1 per year. Send us 50c for the last half of 1918 and we will mail you the back numbers for the first half of 1918, so you will receive a full year for the 50c—just half price. This offer is good for the first 200 subscriptions received, as we have only 200 full sets to offer.

Buy your 60-lb. cans through us—only 98c per case of two, from Detroit, Mich. Beekeeper supplies bought for our subscribers at a considerable discount from catalog price.

Have your foundation made from your own wax; our proposition is a good one. Any make of foundation or supplies you prefer, shipped direct from the factory to you without the middleman's profit.

Remember that 50c pays for the **Domestic Beekeeper** for all of 1918; also, our large buying experience is at your service.

You will need the **Domestic Beekeeper** to keep in touch with the minimum price-fixing committee, appointed by the Chicago Northwestern Association, of which the editor is one, to be in shape to intelligently place a price on your 1918 crop of honey. This committee saved producers something like $500,000 on their 1917 crop and expects to do even better this year.

An enterprising honey producer cannot afford to be without the **Domestic Beekeeper** at this especial time. The **Domestic Beekeeper** (successor to the Review) is the producer's own journal, having no interests excepting the producer.

**Address, with your 50 Cents**

**The Domestic Beekeeper**
**NORTHSTAR, MICHIGAN**

# THE LAST TIME
You Bought
# QUEENS

did you get what you were looking for? Were they thrifty, hardy, gentle and beautiful? Were they the Imported Queens Americanized? Were they guaranteed to reach you in good condition, to be purely mated and to give perfect satisfaction? These are the qualities that have enabled

## Forehand's Three-Bands
THE THRIFTY KIND

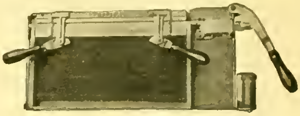
to stand over a quarter of a century of actual test. That has brought them up to a standard **surpassed by none, but superior to many.**

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 1.25 | 7.00 | 11.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Our prices will remain the same until July 1st.

Write for Circular.

**W. J. FOREHAND & SONS**
Fort Deposit, Alabama



PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

# BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and quality. Write for catalog.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

# TYPEWRITER SENSATION

**$3.00 a Month Buys a Visible Writing L. C. Smith**

Model No. 5 perfect machines only of standard size with keyboard of standard universal arrangement—has Backspacer—Tabulator—two color ribbon—Ball Bearing construction—every operating convenience. **Five Days Free Trial.** Fully guaranteed. Catalog and special price sent free.

**HARRY A. SMITH, 314 -- 231 North Wells Street, CHICAGO, ILL**

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality**; **best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases**.

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

---

**EARLY ORDER DISCOUNTS WILL**

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

---

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

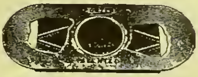
**Will take your Beeswax in trade at highest market price.**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

---

## PORTER BEE ESCAPE SAVES HONEY TIME MONEY



**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

---

Write for Price List and Booklet descriptive of

**HIGH GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

---

**ORDER YOUR**

## BEE SUPPLIES EARLY

**We want you to have our catalogue. Send for one.**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

---

## QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

---

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4.25; doz., $8.00; select tested, $1.25.

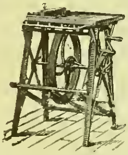
Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

---

## BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

What the Honey crop now is.

What the Honey crop might be if everyone did his share.

**Are YOU doing YOUR share?**

Are you ready for the honeyflow when it comes? It may come with a rush. Have you extra hives for those swarms? You can't afford to lose them. Have you plenty of good frames and comb foundation? Have you a honey-extractor, uncapping-can, knives, etc.? Have you supers and sections for comb honey? If you haven't these now, don't wait any longer. The bees won't wait for you when they get ready to swarm. Send for our latest price list *today.*

**The A. I. ROOT COMPANY**
Factory and Main Office
**MEDINA, OHIO, U. S. A.**

New York
Philadelphia
Chicago

Norfolk
Indianapolis
St. Paul

San Francisco
Los Angeles
Syracuse

**THIS IS THE "SIGN" ON EACH CYPRESS BOARD**

S C M A
No. of Mill
TRADE MARK REG. U.S. PAT. OFFICE

**DON'T GUESS MAKE SURE. "HAVE A LOOK"**

CYPRESS "THE WOOD ETERNAL"

For all uses that invite decay (for instance, bottoms) demand

**"ALL-HEART"**

*"Tidewater" Cypress*

"THE WOOD ETERNAL"

The "arrow" on the end of each board identifies the genuine product of the cypress mills whose CHARACTER of timber, methods of manufacture, and complete responsibility enable them to be members of the Association.

THIS FACT IS YOUR PROTECTION.

ACCEPT NONE BUT TRADE-MARKED "TIDEWATER" CYPRESS

CYPRESS DEFIES DECAY

**SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION**
1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, LET US KNOW

# AMERICAN BEE JOURNAL

2-18

JULY, 1918

A PRIMITIVE MEXICAN APIARY

**We offer you even better service than ever before at our new location**

**COME IN AND SEE US**

**Have you received our new catalogue?**

**Write for our 1918 Bee Catalogue now**

# Big Money? — Yes — Read How

If your banker said to you, "Mr. Brown, buy that piece of land next to you at $100 per acre; it will be worth $2,000 per acre this coming summer," would you buy it today, or wait—well, until later on? We are sure you would not delay one moment.

We offer you the same kind of buy—that is, make $20 on each $1 invested. Buy your sections and bee-supplies *now*, for the sections cost less than $1 per hundred, and next summer, when they are filled with honey, they will be worth $20—think of it, those same sections that you bought for $1. The same holds good on other supplies. ORDER NOW and tell your neighbors the same, or Mr. Railroad Embargo "will buy that piece of land next to you and you'll be left."

## OLD COMB

Ship your old comb and cappings to us for rendering. We charge you 5c per lb. for the wax rendered and pay you the highest market price.

## WAX AND HONEY

We always buy Comb and Extracted Honey, as well as Beeswax, so when you have the above to offer, write us and you will be well pleased.

## Four Reasons for Our Success

**Honesty**

**Quality**

## LEWIS'S BEEWARE

If you have used LEWIS'S BEEWARE you know the quality; if not, this is just the time to invest your money where the results are lasting.

*"Made Like Furniture."*

**Price**

**Service**

**DADANT'S famous Foundation**

## THE FRED W. MUTH CO.

**Pearl and Walnut Streets**
**CINCINNATI, OHIO**

**"QUALITY COUNTS WITH US"**

**ROOT'S Smokers and Extractors**

# QUEENS

**Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 Years a Queen-breeder.**

| Before July 1.— | 1 | 6 | 12 |
|---|---|---|---|
| Select untested | $ 1.50 | $ 8.00 | $15.00 |
| Tested | 2.00 | 10.00 | 18.00 |
| Select tested | 2.50 | 14.00 | 25.00 |
| 2-Comb Nuclei | 4.00 | 22.00 | 42.00 |
| 3-Comb Nuclei | 6.00 | 33.00 | 60.00 |
| 8-frame Colony | 10.00 | 55.00 | |
| 10-frame Colony | 12.00 | 68.00 | |
| 1-lb. package bees | 3.00 | 16.00 | |
| 2-lb. package bees | 5.00 | 28.00 | |
| After July 1.— | | | |
| Select untested | $ 1.00 | $ 5.50 | $10.00 |
| Tested | 1.50 | 8.00 | 14.00 |
| Select tested | 2.00 | 10.00 | 18.00 |
| 2-Comb Nuclei | 3.60 | 18.00 | 35.00 |
| 3-Comb Nuclei | 4.50 | 25.00 | 45.00 |
| 8-frame Colony | 8.00 | 45.00 | |
| 10-frame Colony | 10.00 | 55.00 | |
| 1-lb. package bees | 2.50 | 14.00 | |
| 2-lb. packages bees | 4.50 | 25.00 | |

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, $5 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above prices on bees by pound, nuclei, and colonies do not include queen You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference: Any large supply dealer or any bank having Dun's reference book.

**H. G. Quirin, Bellevue, Ohio.**

---

## THE FLOWER AND THE BEE
## PLANT LIFE AND POLLINATION

By JOHN H. LOVELL,
Botanical Editor of "The A B C of Bee Culture"

Every beekeeper needs this volume in order to understand the honey flora. Descriptions are given of bee-flowers, bumblebee-flowers, butterfly-flowers, hawk-moth flowers, flowers pollinated by the wind, and many others. It will also be of great interest to gardeners, fruit-growers and lovers of nature generally. It is fascinating, not only because of its very great informative value, but because of the sense which it imparts of the beauty of nature as revealed in the subject. Do you know why some bees visit only one kind of flower? Or how many flowers there are of each color in eastern North America? Or whether bees and butterflies prefer certain colors?

Illustrated by 119 photographs taken by the author, chiefly of flowers natural size. $2 net.

*Will be sent postpaid on receipt of price, by* JOHN H. LOVELL, *Waldoboro, Maine.*

**Charles Scribner's Sons, Fifth Ave., New York**

---

## MOTT'S NORTHERN-BRED ITALIAN QUEENS

that resist disease well. Those that resist disease must be hardy, prolific, and hustlers; they are gentle. Bees per pound. Plans on "How to Introduce Queens and Increase," 25 cents. List free. Untested $1 each.

**E. E. MOTT, Glenwood, Mich.**

---

## BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

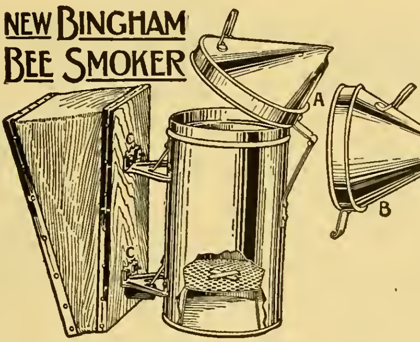
A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

---

# New Bingham Bee Smoker



In 1878 the original direct draft bee smoker was invented and patented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly thirty-five years, and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name in the beekeeping industry.

Bingham Smokers have been improved from time to time, are now the finest on the market, and for nearly forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies, or direct from the manufacturers.

| | Size of Stove | Weight | Retail |
|---|---|---|---|
| Smoke Engine | 4 x7-inch | 2¼ lbs. | $1.25 |
| Doctor | 3½x7-inch | 2 lbs. | 1.00 |
| Two above in copper, extra each | | | .50 |
| Conqueror | 3 x7-inch | 1¾ lbs | .85 |
| Little Wonder | 3 x5½-inch | 1¼ lbs. | .65 |

Hinged cover on the two larger sizes. Postage extra.

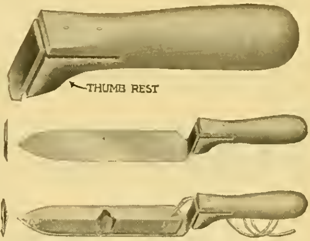
**A. G. WOODMAN CO., Grand Rapids, Michigan**

---

## BINGHAM HONEY UNCAPPING KNIVES

### WITH NEW COLD HANDLE

We are furnishing the same quality steel, best money can buy, thin-bladed knives that Mr. Bingham manufactured years ago. The old-timers all remember these knives and many are writing in, as Mr. Volstad in the following letters. The substitutes offered by others have not given the satisfaction desired.



Lyle, Minn., June 21, 1917.

*A. G. Woodman Co.*

Gentlemen: Have you the thin, good working uncapping knives we used to get about 20 years ago and that worked to perfection?

K. H. VOLSTAD.

We sent an 8½ and 10-inch knife and received the following letter:

Lyle, Minn., July 5, 1917.

*A. G. Woodman Co.*

Gentlemen: Knives received; glad you sent them at once. They are just what I want and have been looking for, but did not know where to get them.
K. H. VOLSTAD.

Many of the most extensive honey producers insist on the Genuine Bingham Knives. Mr. N. E. France, of Platteville, Wis., gave us a fine unsolicited testimonial on the steam-heated Bingham Knife, too long for this space.

| | Weight | Price |
|---|---|---|
| 8½-inch blades | 12-oz. | $ .90 each |
| 10-inch blades | 14-oz. | 1.00 each |
| 10-inch blades, steam heated with tubing | 20-oz. | 3.00 each |
| Steam Generator, with safety valve | 40-oz. | 2.00 each |
| Double Burner Oil Lamp Stove | 7 lbs. | 2.75 |

Postage extra

**A. G. WOODMAN CO., Grand Rapids, Michigan**

---

## TIN HONEY PACKAGES

**YOU WILL MAKE A MISTAKE** if you do not ask for our **Low Prices on** Friction Top Pails and Cans. We are **Saving Money** for car load buyers and others of smaller lots. Why not you?

Our three-year contract is enabling us to make prices considerably under general market quotations. Let us hear from you, specifying your wants.

## A. G. WOODMAN CO.
### GRAND RAPIDS, MICHIGAN

**"Falcon"**

**THINGS THAT ARE NECESSARY FOR YOUR APIARY**

1. There must be a good location for the apiary.
2. Queens must be healthy and vigorous to put life into the hives. (Our queens are the best to be had and at reasonable prices.)
3. Your bees cannot do the work they should if you do not give them the best with which to work. If they have ample storage space, if they can work all the time without slack motion, they will be more contented and swarmless. To accomplish this, you must give them ample storage space, that is, the **RIGHT HIVES AND SUPPLIES. "Falcon"**

Beekeepers should be placing their orders early for their early needs. He who waits is apt to suffer. These late beekeepers who want their goods in such a hurry at the last minute will lose some of the honey crop by not furnishing their bees with ample storing space. Railroad embargoes and rush business make deliveries slow.

Our famous **"Falcon"** supplies will please you. Do not wait. Order now and strike while the iron is hot. **"Falcon"** means the best, the standard of perfection. Red Catalog and Simplified Beekeeping upon request. Dealers everywhere.

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Good Beehives Come From**

**Bee Supplies Bee Supplies**

**READ—ORDER EARLY**

Owing to the congestion of freight and embargoes, we caution all beekeepers to get their order in early, otherwise you will suffer a great loss when you actually need goods, and you perhaps will be unable to get them for the above reasons. We have a large stock on hand, and can fill orders promptly, provided the railroads will accept freight.

*Send for our new catalog.*

**C. H. W. Weber & Company**
**2146 Central Ave. Cincinnati, Ohio**

**TENNESSEE-BRED QUEENS**

**46 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested..... | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested. | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

**We Offer**

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**
**Glen Cove .. New York**

**WESTERN BEEKEEPERS!**

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# ?? WHY ??

Why is it that so many beekeepers prefer Dadant's Foundation? Why does it give such good satisfastion and why is it that when tested side by side with many other makes beekeepers have reported that "they take to DADANT' first."

**Do We Use Special Sheeting Machinery? No**

We use the Weed process of sheeting our beeswax into endless rolls, and it is the same process as used by nearly all manufacturers.

**Do We Use Special Foundation Mills? No**

We use the same kind of mills as are used by practically every foundation manufacturer in the world.

**Do We Use Special Beeswax? No**

We use beeswax such as is produced by beekeepers all over the United States.

## THEN WHY?

**BECAUSE**

Our beeswax is cleaned in such a way that all impurities are removed and all the fine qualities are retained.

**BECAUSE**

Sulphuric and other acids recommended and used by many manufacturers for cleaning beeswax are not used by us.

**BECAUSE**

Our motto is and always has been "EVERY SHEET PERFECT"—and we live up to it.

**BECAUSE**

For FORTY YEARS comb foundation has been, and still is, our *specialty*. When you get DADANT'S FOUNDATION you know that you are getting the best that money can buy. When you send your beeswax to us to be worked into foundation you know that you will get perfect work done. When you ship us your old combs and cappings to render you will get the maximum of wax they contain and, if desired, this wax will be worked into the finest quality of foundation made.

IT IS UP TO YOU, therefore, to insist on DADANT'S FOUNDATION when you order your goods from your dealer. If you cannot get it from him, then order from us.

**DADANT & SONS**

**HAMILTON, ILLINOIS**

# LEWIS SECTIONS
## HAVE
## INDIVIDUALITY

BECAUSE they are in a class by themselves. They are not like other sections. Very rarely do they break in folding---in fact one of our customers writes us that he has put up (folded) thirty thousand Lewis Sections in a season and has not found *one section* in the whole lot that was not perfect. Beekeepers everywhere, no matter what their preference may be for hives or other bee equipment, agree that, when it comes to sections, the LEWIS SECTIONS are supreme. This is—

**Because** the material which goes into a **Lewis Section** is of the right kind, especially selected for the purpose. The stock is sorted and re-sorted—the discolored stock thrown out, leaving only the whitest material to go into **Lewis Sections.**

**Because** the V groove, which is the most important process in the manufacture of a section, is made just right. In the **Lewis Section** it is cut just deep enough so that the section will not break in folding. The **Lewis Section** expert has been supervising the manufacture of **Lewis Sections** for over thirty years.

**Because** the finishing of the section is given the utmost care. The **Lewis Sections** are polished on both sides in a double-surfacing sanding machine designed in the Lewis plant especially for this purpose. It insures the uniform thickness of each and every section. The dovetailing of the ends is smooth, clean and just right.

**Because** even after the **Lewis Sections** are completely manufactured, the packing is considered a very important part of the marketing. All **Lewis Sections** are put up in regular standard packages containing a good, full count. A tight wooden box is used, entirely enclosing the contents, so that no discoloration from air can occur, no matter how long the sections are carried in stock. The package is also strongly braced at all corners, insuring delivery in good order.

**AT THE SAME PRICE YOU PAY FOR OTHER STANDARD MAKES OF SECTIONS YOU GET ALL OF THE ABOVE WHEN YOU BUY THE LEWIS SECTIONS**

**INSIST ON LEWIS SECTIONS — LOOK FOR THE BEEWARE BRAND**

**G. B. LEWIS COMPANY**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS U.S.A.
MAKES THE FINEST

**Watertown, Wisconsin**

**ORDER FROM YOUR NEAREST DISTRIBUTOR**

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 7 HAMILTON, ILL., JULY, 1918 MONTHLY, $1.00 A YEAR

# MEXICAN BEEKEEPING

## Primitive Methods of Beekeeping Practiced by the Mexican Peons in the Lower Rio Grande Valley, as Seen by Frank C. Pellett

THE visitor to the lower Rio Grande Valley finds himself in strange surroundings. Even the man who has lived for years in Central Texas finds conditions unfamiliar. When our party arrived at Brownsville, in February, the wild oranges were hanging on the trees and the roses were in bloom, although there had been some frost. The wild oranges, like the wild crabapples of the north, are ungathered, because they are so sour as to be unpalatable. Loads of cabbages were going to market and fields of lettuce were ready to harvest. There was little to indicate the zero temperature which had so recently been left behind at our northern home.

Brownsville is a quaint old town with a foreign aspect. Mexican women sit on the sidewalks offering their drawn work for sale, Mexican boys carry papers from door to door, while their dark-skinned daddies drive their funny carts about the streets. More than half the population of the city and surrounding country seems to be Mexican. Not far from the city are to be found villages composed entirely of Mexican population, with perhaps none who understand the English language. The houses in these villages are made of palms or canes, with roofs of similar material. In our last issue was shown a picture of some of the houses in such a village, and figure 1 in connection with this story shows the home of the apiary herein described. This house is made partly of boards, while many of them are built entirely of such palms or grasses as happen to be within reach. In such a climate there is scant provision made for protection from cold. To keep dry is all that is necessary during most of the year. Now and then, during the winter months, there are damp and chilly days when the weather is extremely disagreeable. Although it seldom frosts, one feels the chill keenly without plenty of clothing or a good fire.

Mention has already been made of the great variety of flora in the valley. About all the thorny species of West Texas are present, with the addition of a great variety of plants similar to those found further north. In the north, the elm is one of the earliest sources of pollen in the spring. The species of elm that is common in the valley blooms in midsummer. The willows also are common. They are among our most widely distributed trees, being found from the far north to the Mexican boundary.

The birds are as strange as the plants. Green jays, inca doves and chaparral cocks take the place of the familiar species of the north. The English sparrow is about the only familiar bird to be seen. In east Texas one finds most of the birds which he knew in the north, but in the Brownsville country they are nearly all strangers. The turkey vulture is a common bird everywhere in

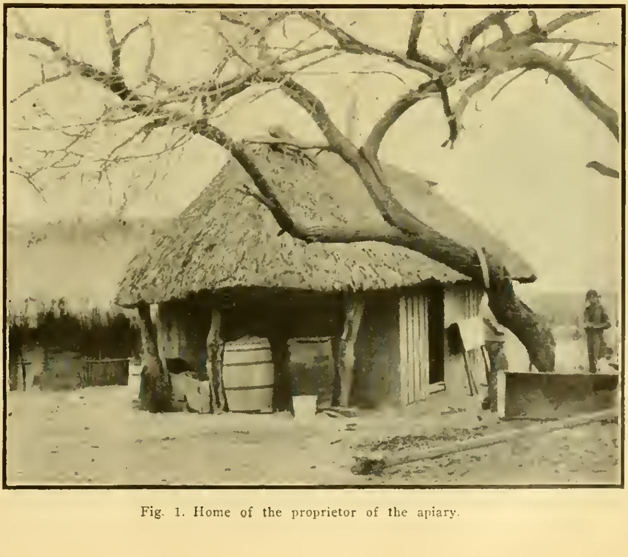


Fig. 1. Home of the proprietor of the apiary.

Texas, but no crows are to be seen in the valley.

A whole chapter might be written about the ants of Texas. There are very interesting species to be found there, including the agricultural ants, which cut down every plant about their mounds except what is known as ant rice, thus giving this plant special opportunity to grow.

The cutting ant is even more remarkable in its habits, since it carries bits of leaves to its nest for the purpose of reducing them to pulp and cultivating a fungus. The long files of these insects on the march, each with a piece of leaf over its head, gives them the name of "umbrella ants" in some places. There are so many things of interest that a naturalist gets fussed, because there is not time enough to see them all.

One of the most interesting things is a small yellow insect, which greatly resembles the common yellow jacket of the north. It has some characteristics of the wasps, and some of the bees. The nest is composed of paper like that of the bald-faced hornet, or the yellow jacket. The cells are small, being about the same size as those of the yellow jacket; but the nest is large, one that we saw being nearly three feet through, the long way. The astonishing thing about this insect is the fact that, while its nest is made of paper like that of any other wasp, it stores honey like the honeybee. The honey is not sealed in the combs, however. The Mexicans are fond of the honey, and hunt for these paper nests for the small amount of honey secured. Local beekeepers also assert that it swarms like the honeybee. The question arises whether it is a wasp or a bee. Unfortunately, we were unable to find any nests which were occupied, although several empty ones were shown to us. So many different persons vouched for the above facts concerning the habits of the species that we could not doubt them. If the insect has been described in our literature, I have so far been unable to find it.

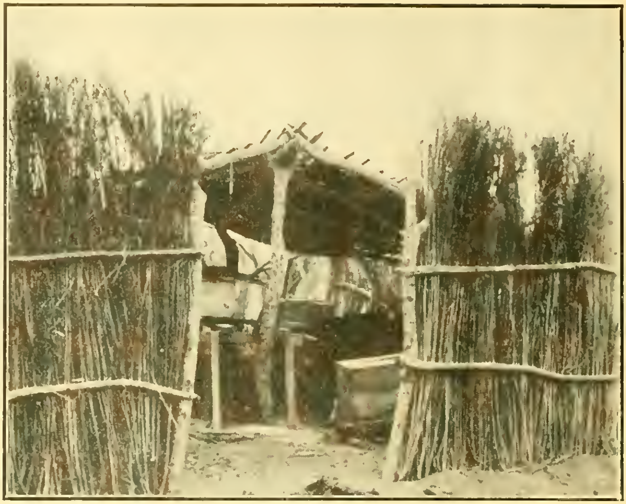


Fig. 3. Looking in, one sees rude shelters under which are placed the bees.

There were four of us in the party, in the journeys about Brownsville. Mr. A. Lynn Stephenson, a local beekeeper, certainly knew where to find interesting things. He knows not only the bees of the valley, but the plants and the people. No stranger would have been able to find the apiary which furnished the photos to illustrate this article. We drove for some distance along a well traveled highway and then turned into a little by-road that wound around through the cactus and brush for a long way, until it ended at a little Mexican village in a bend of the Rio Grande river. The village itself was situated on the bluff overlooking the river, while immediately below it was a considerable acreage of cleared land which was being prepared for crop. Mr. Stephenson acted as interpreter, and secured for us the permission to visit the apiary and secure the desired photographs. On another occasion, when the party started out without him, we made slow progress, since no one could talk Spanish, and we were unable to make ourselves understood.

If this was a farm paper instead of a bee journal, some of the Mexican goat ranches that we passed would be worthy of a story.

In all my travels I have never seen anything in the way of an apiary that bore the slightest resemblance to the one we found there. Enough has already been said about the climatic conditions to make it clear that there is much swarming among the bees in the valley. This apiary is conducted primarily for wax, rather than for honey. At one time there were several hundred colonies, although the number had been reduced somewhat at the time of our visit.

The first thing one sees is a high fence made of canes, as shown in figure 2. The purpose of this fence is not entirely clear, since the gateway is open with no provision for closing it. This fence surrounds the apiary on three sides, while the fourth side is the bluff above the river. On coming to the gateway and looking in, one sees rude shelters similar to the Mexican houses, under which are placed the bees. Once inside, one finds several of these huts, and under each are rows of the bee boxes. The purpose of the huts is clear enough, for the midsummer days are hot, and shade is very desirable for protection from the extreme heat.

The hives are nothing more than rough boxes. Unlike the box hive,

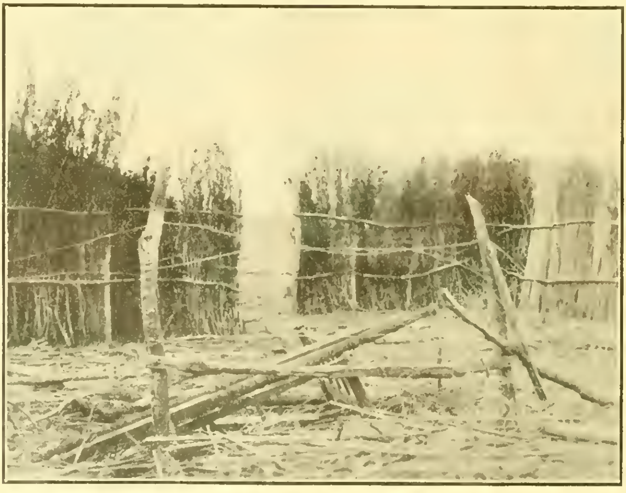


Fig. 2. Fence of canes about the apiary.

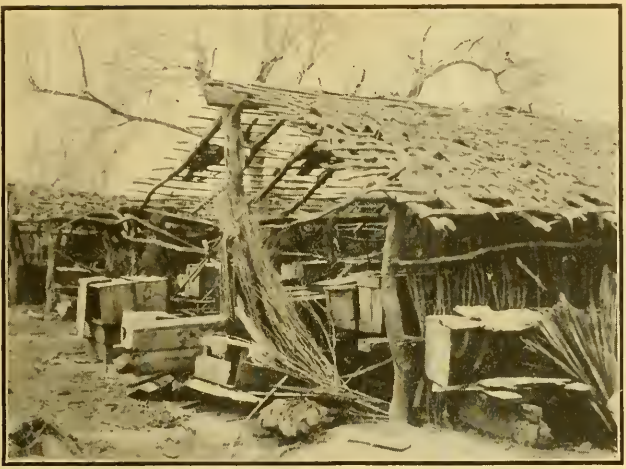


Fig. 4. Inside, one finds several of these huts in a row and under each are rows of bee-boxes.

one side is left entirely open, or a sheet of burlap or cheesecloth is hung over it. Of the hundred or more hives, perhaps one-third had a cloth hung across the front, the rest were entirely open, as shown in figure 5.

About twice each year the combs are all cut out and the bees thrown back into the empty boxes. There is, of course, much loss from the melting of combs filled with brood, but the peon is indifferent to that. The wax is a saleable commodity and the bees will soon re-establish themselves. The wax is sold, for the most part, to the Catholic priests for the making of wax candles for ceremonial purposes.

This system has one great advantage over the box hive beekeeping of other sections; it automatically eliminates American foulbrood. With all the combs melted up at such frequent intervals, this disease can never get much of a start among the bees, and the nearby beekeeper, following practical methods, needs have but little fear of the harboring of American foulbrood by his Mexican neighbors.

## "Honey for Cooking"

By Dr. Burton N. Gates, Associate Professor of Beekeeping, Massachusetts Agricultural College

"HONEY for Cooking" is an expression commonly met with in talking to the public who are eager to supplement and to save the sugar supply, but who at the same time are anxious to make a portion of their usual preserves, jellies and jams and to prepare their household foods. The public is ready to use honey in the various ways but they say "Honey for Cooking" is so expensive. The only remark in reply is, in Yankee fashion, a question, "Are you sure that it is so much more expensive than sugar?"

When purchased in jelly tumblers or less than pound packages, the rate is high. The consumer pays for the bottle, for the handling, overhead charges, cost of selling, etc. Unfortunately, too, few markets offer honey in more than two-pound packages. It is seldom that a five-pound pail or a ten-pound pail can be procured other than from some beebeekeeper. On the other hand, maple syrup is to be had by the gallon. The question may be raised, therefore, are the beekeeper and packer at fault in supplying the small package of honey and not offering a larger package? There is every indication that the jobber and retailer will handle it if it is available. The public is in a receptive mood, ready to learn how to liquefy candied honey, how to properly keep it and use it, if obtainable in bulk. But if sold in large packages it would seem that the prices should be consistent with the lessened cost of packing and handling.

Since the expression "Honey for Cooking" is so commonly met with, why not use it as a catch word in introducing perhaps, first, the five-pound package, and later the ten-pound? Let the package bear these words and with them a brief explanation of liquefying the candied honey and of properly keeping it after liquefied. Brief suggestions for utilizing honey in the preparation of foods and preserves could also be included.

There is another feature. The eastern producer who is in the midst of large and dense populations finds a ready sale locally for all the honey which he produces; moreover, he finds that the pound package is his best selling size. Probably his best profits are on this size. Therefore, there is little inducement for him to pack in larger containers, thereby reducing the price and his profits. However, low grade honey produced in the commercial apiaries of the west might well be packed and graded ready for eastern retail trade and known on the eastern market as "Honey for Cooking." Perhaps it would help the producer to dispose of his darker honey. The question, therefore, may be raised: is there not an opportunity to wholesale, properly labeled, five, and possibly ten-pound containers, crated in lots of six and shipped in a wholesale way ready to be disposed of directly to the jobbing grocers? It would cost the producer slightly more to prepare his honey for market in this form, rather than in the sixty-pound cans, but it is the writer's opinion that a satisfactory profit could be obtained and yet the honey made available for cooking purposes at a cost attractive to the public.

There would be needed a little educational work among the jobbers. Perhaps, too, the retailers would need to be informed. The public, however, is ready

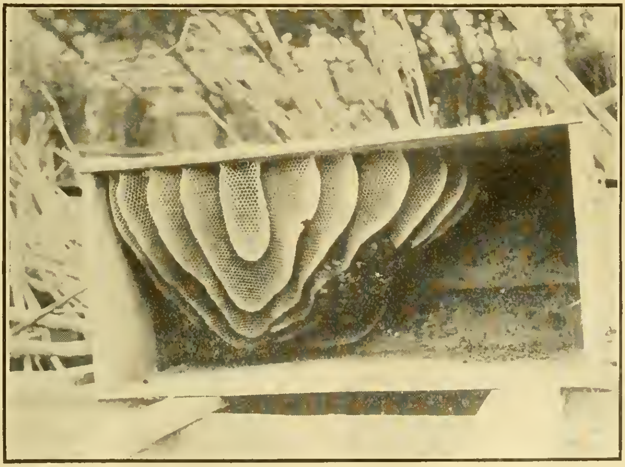


Fig. 5. The hive is entirely open in front.

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
First Nat'l Bank Bldg., Hamilton, Ill.

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which shows that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C P. Dadant.)

# *THE EDITOR'S VIEWPOINT*

## Foulbrood Kill or Cure

Through carelessness on the part of the printer, 3 lines were dropped out of the editorial in the May number. It made a part of the editorial unintelligible. Alas, that printers are not perfect. Meanwhile we received a very interesting letter on the same subject from an Ohio inspector, Mr. A. C. Ames. The reader will find it in this number. It is worth perusing, for it tells things about inspection which the average beekeeper does not know.

## How to Keep Bees

We are in receipt of a second edition of a bulletin with the above title, written by the well-known and experienced apiarist, Arthur C. Miller, and published under the auspices of the Rhode Island State Board of Agriculture. The book contains 50 pages and a number of illustrations. In so short a space one cannot expect a full treatise. But the directions given are certainly the most important for the beginner in beekeeping. The book may be secured from the State Board of Agriculture at Providence, Rhode Island.

## Diet and Disease

J. L. Rentoul, in the British Bee Journal, suggests, May 2, that "Isle of Wight" disease, which is quite similar to our "constipation" or "paralysis" or "May disease," is a bowel trouble and that its cause and cure depend a great deal upon the **diet.** No doubt he is right, as most of the authorities recognize that these diseases begin when the weather is damp and chilly and the pollen or honey harvested is probably of poor quality. But when he suggests that sugar feeding may be responsible for the disease, we believe he is mistaken, for we have seen the disease where the colonies had never been fed on syrup. We must hunt for the cause elsewhere. However, it is quite probable that sugar is not a desirable food for bees in any event and it should not be used whenever good honey is available.

## Wastefulness and the High Cost of Living Versus Foulbrood

An editorial appeal against public and private wastefulness was published in the American Bee Journal for June, 1913, five years ago, when no one foresaw the dreadful destruction of human life and human products which is now taking place. Wastefulness and its connection with the possible spread of foulbrood were pointed out. But the urgent need of economy in all lines was not yet felt. The reprint of this editorial will give an interesting illustration of the progress achieved in this direction during the past 4 years, for much of the reform then suggested has been accomplished.

The writer one day noticed a little cluster of excited bees on the ground in a poultry enclosure. Upon examination, he discovered that they were bent upon gathering a lump of granulated honey, which had been thrown there with the other table waste. The chickens had eaten everything but the wasted honey, butter and bones.

We complain of the high cost of living and seek a remedy in every direction but the right one. The American way is to waste, waste in all directions. We wasted our forests, under the plea that it was more profitable to burn them off than to save them. We waste our coal at the mines, in many places, allowing the slack to consume itself by spontaneous combustion, or by contact with the air. We waste our land, leaving innumerable spots uncultivated, even in the heart of civilization. We waste our manures, often even contaminating our streams by using them to wash away useful fertilizers. But above all things we waste our food.

This reproof is not intended for the foreigner who has been raised on economical methods in a thickly settled country. In all probability, the foreign-born American who reads this has been taught, in his young days, to consider bread and meat as **sacred** under the plausible plea that he might starve some day, for want of such food as he proposes to throw away, and also because so many millions in the world do not get as much as they want to eat. But our American education is different. Many a bright, neat, sensible and educated American mother thinks nothing of teaching her children to take a heaping plate-full of all kinds of food, leaving half of it unconsumed, in a disgusting heap, made of a mixture of all the dainty dishes served upon the table. Nay, in many cases, children are taught that it is **good manners** to accept or take more of one dish than you can possibly use and leave two-thirds of this upon your plate. Thus meat, gravy, bread, potatoes and other vegetables, fish, butter, jellies, pie and **honey** are carried to the back yard, or thrown into the slop-pail.

When this waste takes place upon the farm, it is but half wasted, for the hogs and chickens consume most of the remnants, so however expensive it may be to feed bread, cakes, jellies or honey to the hogs, the food is not altogether wasted. But what of the cities? How much of this willful and unnecessary waste is made to clog the sewers or sour and rot in the refuse can in the back lot?

What has this to do with bee culture? Why should a bee journal take notice of this bad custom and sound a note of warning? Because, as far as honey is concerned, the waste constitutes a danger. Because if one-fifth, or even only a tenth, of the honey served upon the tables is thrown away, there is a chance in many instances, of the bees getting at this second-hand, and bringing to the hive, with it, undesirable bacteria. The very best honey may contain in it germs which, **absolutely harmless to human beings,** mean ruin to the brood.

Why are brood diseases almost permanent around many large cities in this country, if it is not owing to the fact that some of the honey shipped from all parts of the country is, to a large extent, exposed where bees can reach it?

One will say that, in most cases, the honey is healthy for the bees and entirely free from germs. True. But we know that in a case of contamination, the microscopic germ which causes brood diseases is so small and so sparingly scattered in the honey that scientific examination has usually proven inadequate to find it. In other words, those germs of bacilli, which are **entirely harmless to man,** are so infrequent in contaminated honey that a microscopic examination usually fails to detect them. But they are situated in the most favorable condition for development in the stomach of the larvæ.

Aside from the dangers arising through the wasting of honey and other foods, is it not time for civilization to take notice of the wanton loss which has thus far been considered fashionable and proper?

We dare say that, our country through, from one-tenth to one-fifth of all the food served upon our tables finds its way to the dung heap, untasted. Think of wasting 10 to 20 per cent of your food! How long would this amount support you in your old age?

This habit is not confined to the wealthy and well-to-do, but is noticeable even among the wage-workers, though in less degree. Neither is this any benefit to the housekeeper, for she has to prepare so much more food, and after each meal has an ugly mess to clean up, made of the neatest and finest morsels that she has artistically prepared. Aside from the high cost of living created by such an untidy habit, this alone ought to urge us to stop it.

### Death of G. M. Doolittle

Marietta, N. Y., June 10, 1918.

Gilbert M. Doolittle died June 3 of heart failure. He was taken ill in church the day before. He was 72 years of age in April last. A widow survives him. No children.

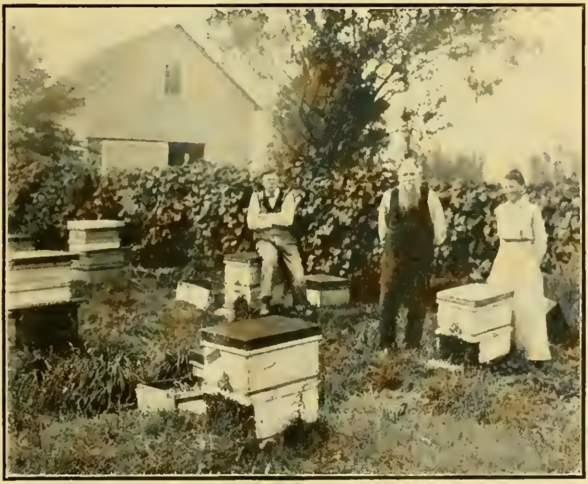
P. G. CLARK.

G. M. DOOLITTLE

G. M. Doolittle was one of the most experienced beekeepers in the United States. He was a subscriber of the American Bee Journal as early as 1870, and a contributor, more or less regularly, to this magazine and Gleanings from that time to this.

The greatest invention of Doolittle was his method of queen-rearing, explained in his book "Scientific Queen-rearing," published originally in 1888, with numerous later editions. We have explained, in this magazine, in May, 1917, how the method was brought about. In October, 1878, a beekeeper, by the name of Boyd, suggested, in Gleanings, the possibility of using old queen-cells, taken from almost any hive of bees, and placing in each of these a larva. Then A. I. Root suggested the use of a rounded stick wetted and dipped in beeswax to make these acorn cups artificially. Doolittle put these suggestions together and also devised the rearing of queens in the upper story of a strong, queenright colony, by using a queen-excluder between the stories. This gave the basis for his system, now used all over the world. In France a description of the Doolittle method was published in 1902, by Giraud-Pabou, who was very successful with it. The Italians also brought it into prominence, and perhaps the most perfect establishment for the rearing of queens by the Doolittle method is that of Enrico Penna, of Bologna.

During the past few years Mr. Doolittle spent his entire time in the care of an invalid wife, who survives him and will miss him still more than the bee fraternity. For several years past Mr. and Mrs. P. G. Clark have been in charge of the Doolittle queen-rearing yards and apiaries.



G. M. Doolittle, discussing beekeeping with Mr. and Mrs. Clark in the Doolittle & Clark queen-rearing apiary in 1916.

### Bibliography—The Bees and the Honey (Le Api E Il Miele.)

A book of 240 pages with the above title has just been published by Professor Giuseppe Montagano, of Rome. It is a treatise of modern beekeeping, containing useful advice and devoting an entire chapter to the transferring of bees from the old skep to movable frames.

The most interesting point of this book, to us, is the difference it establishes between the Italian bee (apis ligustica) and the Sicilian bee which the author names "apis sicula." He asserts that there is a visible difference between the two, the Sicilian worker bee being of more "ashy" color, while the queens are of chestnut color and the drones of a "dark-ashy color (cenere scuro.)" He holds that this race is still more peaceable than the Italian, though perhaps a little smaller. He advises the mixing of the two races, by introducing the Italian bee in Sicily.

In the October, 1915, number of the American Bee Journal, we introduced evidence that the only part of Italy where the Italian bee does not exist in its purity is the province of Liguria, south of the Ligurian Alps. So the name "Ligurian" is a misnomer. The name "Sicula" for the bees of Sicily is much better adapted to the race which it represents. It might be advisable to give those bees a trial in this country.

The author of the book does our editor the honor of publishing his photo, describing him as the editor of the "greatest bee periodical in the world." It is very flattering, and we hope to deserve it.

# How to Get 2 Cents More for Honey

By Chilton Gano

If honey producers could get 2 cents per pound more for their honey than at present, and still not have the consumer price advanced—in other words, if they could lower the cost of distribution that much—they would jump at the chance.

Well—they **can** do this!

The Texas honey producers did it, and it only took them six weeks. How they did it is no mystery. It was simply (to quote Kipling) "the everlastin' teamwork of every bloomin' soul."

Any group of honey producers in a fairly small territory can do the same thing.

The writer told the story of the Texas Honey Producers' first year of co-operative marketing in the May and June issues of the American Bee Journal. Now it is desired to "point the lesson" from their experience—to analyze what they did—get at the gist of it—grasp its principle—as an aid to other beekeepers in doing likewise.

Too often the mistake is made of reading such stories and then forgetting them—in one ear and out the other. This would be a **great** mistake, in the present case. It is probable that nothing so important and significant to the subject of honey-selling generally has happened in a long time.

Suppose we follow the "Before and After" method of summarizing what was done. The situation in Texas **before** co-operation will be seen to be exactly like the situation prevailing today in a score of honey-producing communities. The contrast with conditions **after** co-operation was adopted, will be found striking and will make it clear just how distributing methods were improved and their cost lessened.

Beekeepers who want to secure better prices and realize that better prices must be "earned"— that they won't just come for the wishing —are advised to thoroughly grasp the lesson of this article, then to study the two articles in May and June American Bee Journal, and, finally, to interest the beekeepers of their communities in the new and better method of selling honey.

Remember, that it only took the Texas producers six weeks to permanently advance honey prices 2 cents. That is inducement enough for any man. But here is another inducement: The new plan gave new life and new impetus to the Texas honey industry. Texas honey is now in demand, is paying everybody connected with it, its production is worth while, the producers have every reason to increase production to the utmost. **This is helping to win the war!** Anything that promotes production of a sugar substitute is helping to win the war.

### Before Co-operation

Before co-operation in Texas the situation was just like it is in any community where each farmer is his own salesman. Some of the producers were selling to speculators, some to jobber' buyers, some direct to the wholesalers or retailers in nearby cities; some, perhaps, unsatisfied with prices procurable in these ways, were trying to sell direct to consumers of their community. There was no general understanding regarding what was a fair price for honey. Each producer got the best price he could. If he happened to feel blue or discouraged, or the buyer could make him feel so, he might sell at no profit whatever. Some even sold below cost without knowing it, having no correct idea of what it costs to produce honey.

It is thus seen that producers were inevitably underbidding each other in the markets. Such a condition benefits no one. When prices to the producer are unsatisfactory he has no incentive to put up a quality product, to pack it properly, or to take care of it during distribution. His business, being inadequately financed, is shabbily conducted. This brings honey on the market in an unattractive condition. It doesn't appeal to the trade or to the consumer. It can't compete in "looks" with the handsome products of big packers now featured in every grocery store. Farmers don't realize how many things sell because of their sanitary, clean-cut, appetizing "look."

Under these conditions honey didn't appeal to producers, trade or consumers. It isn't surprising that it was a drug on the market in July, 1916, selling at 5 cents for extracted and 7 cents for comb. These prices were born of ignorance and ruinous competition.

Again, grocers didn't want to handle it, because it was too much of a hit and miss proposition. You can't build up a regular consumer demand for a grocery product that sometimes you can get and sometimes you can't, and that varies in pack, color, price and flavor, every time you buy it. Grocers have been educated by the big manufacturers to where they like businesslike methods and standard products attractively packed.

### After Co-operation

Nobody was satisfied. Then the wholesalers and retailers heard that the producers had waked up and were going to get together and mend matters. The trade don't usually welcome the news that producers want better prices, but this time was an exception to the rule. Honey was "N. G." as it was. It wasn't making money for anybody. The trade must have realized that the only way to get a presentable product was to give the producers fair prices.

News of the meetings of the beekeepers and their analysis got around. They believed they must have at least 2 cents a pound more for honey in order to deliver a good product. They agreed that such an advance was only fair—was only a "living wage." Well—the trade didn't "kick." Within six weeks after the producers had determined to organize, before they could have done very much except "talk" and "plan"—Texas honey was bringing the higher price. It just shows the salutary psychological effect on an industry when "teamwork" becomes the motto.

And the minute it became apparent that honey need no longer be a "beggar" in the markets, but was "worthy of its hire," there began to be an incentive to throw away its old clothes and "dress up." The Association set out at once to remedy all the defects in the old system of marketing honey.

One defect—a big one—had been the absence of standards. Honey grading rules were adopted that should be rigidly followed by all members of the Association. Today the grocer can no longer complain that he is unable to get the kind of honey his customers have been buying from him in the past and prefer. He orders by grade name, and if the honey doesn't meet the grade description, the Producers' Association makes good and penalizes the member who packed it.

Another defect had been absence of a guarantee by the producer to the consumer. Grocery products like Shredded Wheat, Heinz's Beans, Welch's Grape Juice, bear the maker's name and label, and this serves as a guarantee of quality. Somebody stands back of the product and says, "I packed this; if it isn't O. K., I'm ready to make it good." The Association adopted a brand and label, which is its guarantee to the customer that honey so branded is first-class and can be depended on.

Another defect had been too much handling of the product between producer and consumer. And this is highly important. In the case of both extracted and comb honey, rehandling costs money—and in the case of comb honey it also causes unnecessary leakage and breakage. The Association plan doesn't allow the jobber to handle the honey at all. The jobber does all of the other usual things. He gets the retailer's order, extends him credit if desired, and collects for the shipment. But he doesn't deliver the honey. It is shipped direct to the retailer by the producer, who acts under instructions from the Association's general manager, Mr. E. G. LeStourgeon. This one factor of direct shipments, saving leakage, breakage, rehandling charges, bookkeeping and storage, is no doubt alone saving more than the 2 cents per pound which was accorded the producer after six weeks under the new plan.

This article is intended merely to draw the broad, emphatic lesson from the experience of the new Texas organization—not to tell the whole story. As a matter of fact, the 2-cent advance was only the beginning of the savings and benefits secured by this Association, as may be learned by referring to the previous articles.

What the Texans did can be done by any beekeepers. One thing should be noted, however, Texas has a new law authorizing the co-operative form of corporation. Many States now have such laws. They greatly facilitate the working out of co-operative marketing plans. The writer expects to discuss this subject in detail in his next article.

Chicago, Ill.

## A Month in Florida

By the Editor

A month in Florida! Why, many beekeepers go to Florida for the entire winter!

This is true, but there are only a few hundred of them, and beekeepers who never went to Florida, and never will go there, can be counted by the thousands, so perhaps many of our subscribers will enjoy reading the experiences of a winter month spent in the South.

I will not mention our stop in St. Louis, or at Nashville. The winter was just ending there, for it was near the end of February, but there was still ice on the Mississippi, opposite our home, almost thick enough to cross on, while at Chattanooga, when we arrived there, the second day of our trip, the fruit trees were opening their buds. We visited the historical spots celebrated as the headquarters of the Federal and Confederate armies on the hills back of the city, the camp at Chickamauga and Lookout Mountain, from the top of which we looked down 1,700 feet on the city and on the moccasin-shaped Tennessee River making a sharp bend at the foot of the mountain.

The following day, for we traveled only in the day time, we passed through Georgia and began to realize that we were reaching southern countries; the fruit trees were in full bloom, the peach trees being already out of bloom.

On the fourth dav of our trip we left Jacksonville, Fla., which, by the way, we do not admire as a city, and traveled in a southwesterly direction. At noon we reached the country of oranges. The trees were in bloom and the odor of orange blossoms pervaded our car. The small saw palmetto that we had seen all the way from Southern Georgia, was now accompanied by the cabbage palmetto, a tall tree, and the landscape assumed a tropical appearance, but—what swamps! How much white sand throughout Georgia and Florida, a plain, flat country, covered mainly with small pines and live oaks, to which hang the long festoons of southern moss.

The Cabbage Palmettos make a fine avenue in their native soil.

In the evening we reached St. Petersburg and realized that we were indeed in a country of perpetual summer, for around the hotel all sorts of flowers were in full bloom. St. Petersburg has fine streets, delightful walks, a beautiful bay—Tampa Bay—good fishing. It is a city of tourists, one of the finest spots in which to spend the winter months. It rains there so little during the winter that the daily paper, the Evening Independent, is given free to its subscribers on every day of absence of sunshine. They say they had 56 such days in seven and a half years.

The white sand is the worst feature in this land of sunshine. Ordinary crops cannot grow. A joint grass stretches its stems, creeping over the ground like the legs of a spider, 30 or 40 feet in all directions, and makes a sort of network over the sand. Then leaves gather in this grass and in the course of time it makes a little soil.

I hunted for beekeepers, as I do wherever I go. W. H. Plunkett, who lives in St. Petersburg, is a native of Florida and owns an apiary eight miles from the city, in one of the rare fertile spots of the country. He took me to it in his automobile. An apiary of some 50 colonies, hidden behind live oaks, cabbage and saw palmettos, and drooping moss on the trees, made a wonderfully wild looking sight. The bees were gathering a little honey, but the crop from palmetto blossoms had not yet begun. That is the main source near St. Petersburg.

Mr. J. J. Wilder, our well-known contributor, who spends his winters in Bradentown, only 30 miles from St-Petersburg by water, came to see us and urged us to visit the city in which he lived. We agreed. A few days later Mr. Wilder met us at the Bradentown landing, accompanied us to the hotel and the next morning brought half a dozen beekeepers with him with two automobiles, to welcome us and take us around. We were already aware of the hospitality of beekeepers in general. This was another evidence of it. Mr. J. R. Notestine, a northerner who has lived in Florida for five years, took us with him, his daughter driving, and together we visited the most interesting plantation in the country, the Atwood Grapefruit Ranch, across the Manatee River, near Palmetto, a farm of 170 acres of fine grapefruit trees about 20 years old, many of them still bending under the weight of fruit up to 5½ inches in diameter. They were picking the grapefruit and packing them in the warehouse, situated on the Manatee River, at the end of a private dock. We saw the washing of the grapefruit and the sorting and boxing. Their largest crop is 100,000 cases, or about 160,000 bushels.

They utilize bees in fertilizing the bloom and Mr. H. L. Christopher, an old and experienced beekeeper, keeps two apiaries there, in different parts of the orchard, at the request of Mr. A. H. Brown, the manager. We sampled the grapefruit, and Mrs. Dadant, who says that grapefruit is too sour for her taste, found them delicious. They had ripened on the trees, that is the secret. The bees had harvested some honey from grapefruit and orange blossoms and Mr. Christopher was expecting a crop from saw and cabbage palmetto bloom, which were budding and would bloom within a month. Mr. Christopher took out a comb of orange honey which another beekeeper, Mr. E. A. Reddout was kind enough to put up in a tin for us so that we could sample it at leisure.

A new thing to me in the apiary line was the raising of one end of the hive cover by inserting a quarter inch wedge under it. This is practiced by Mr. Christopher in his apiary. It gives ample ventilation during the crop and helps keep down swarming. The bees did not seem to use this opening for in-and-out flight, possibly because the broodnest was below.

The same afternoon we took a trip to Sarasota, with Mr. and Mrs. Wilder, who, by the way, is a charming lady, and their little daughter. Acres and acres of vegetables are grown in spots of fairly rich land along the way betwen the two cities. There is a great deal of enterprise in that neighborhood. A number of artesian wells are just being bored to irrigate the crops, for water is needed as much as fertilizers. Sarasota is a small place, but with a bright future. We visited the Sarasota Bee & Honey Company, managed by C. N. Biorseth, with his sons and son-in-law. Between them they care for a number of apiaries, some 500 or 600 colonies. Learning that we wanted to taste the honey of the locality, he brought us a 20-ounce jar of orange honey which had taken first premium at the county fair. This honey is fine, indeed.

Back to Bradentown in the evening, we made a call on the celebrated founder of the largest bee supply establishment in the world, Mr. A. I. Root. Mr. Root and his wife spend all their winters in Florida. We found Mr. Root bronzed like a southerner, but as hale and robust as a young man, in spite of his 78 or 79 years. He exhibited to us a much worn hoe and said that this hoe was the secret of his health, for he spent most of his time in the garden. He gave us an introduction to Mrs. Root, a charming old lady, whom I had never met, and made me the compliment of introducing me to her as the head of the strongest competitive firm the A. I. Root Company had ever found in their business. Mr. Root grows potatoes and beans mainly in his garden and said that he had sold $100 worth of new potatoes by March 23, a feat that surely no one else in the entire United States has done so early.

We had seen tomatoes and corn in bloom in Sarasota, but the only vegetable crops offered on the markets thus far were lettuce, radishes, carrots, cabbage, etc.

We were disappointed in the surroundings of the Root home. That spot seemed to have suffered more from frosts than any other that we saw. The orange trees, the shrubbery and even some of the shade trees had suffered as if a fire had blown over them. It made a desolate looking sight. It was the same at the Wilder home, a few blocks away. These homes are a mile or so from the business part of Bradentown. The growers of oranges keep off the frosts with smudge on cold nights.

Returning to St. Petersburg, we remained there until the latter part of March, spending a part of our time fishing on the bay. Fish are plentiful and those who are fond of the sport can readily catch more fish than they can eat.

During our stay in Florida we saw many lean cows and very few healthy looking cattle. As milk is high, wife remarked, "Why don't they feed their cows better?" But the answer came, "It is not the lack of food, it is the **tick** that keeps them thin." Then we were told that to keep cows free from ticks in this warm country, it is necessary to dip them every two weeks in a bug-killing solution. Some large cattle growers keep a tank of medicated water through which the cattle are regularly driven. That is the only way in which they can keep it away. But aside from the ticks there are other drawbacks to cattle raising. For instance, sandburs (cenchrus carolinianus) are everywhere present in the grass, not only in the country but even in the city yards, and one can imagine the difficulty for grass-eating animals.

Inquisitive friends want me to give here my opinion of Florida as a honey-producing State I do not think that I can add anything or change anything concerning this subject, as it was treated by J. J. Wilder in the April number, page 122. If you wish to try Florida for bees, investigate for yourselves, as there are good and bad locations. Mr. C. C. Cook, located at Tasmania, a new town, close to the famous Lake Okeechobee, on the west of it, in a country that I thought entirely uninhabited, told me of the most wonderful crops and swarming that I had ever heard and sent me some delicious gallberry honey from that vicinity. It is almost as white as clover, but a little strong in flavor.

There are unexpected possibilities in Florida. It was on the east coast that our departed friend, the veteran apiarist O. O. Poppleton harvested his immense crops. But the main attractions of Florida are its wonderful winter sunshine, its wild tropical

The "kiddies" beneath a hibiscus on a Florida lawn in February.

scenery, its immense fishing and boating resources. Between the numerous "keys" and the main shores, the weather is balmy, the air is pure and one can forget there the rest of the world and its troubles.

## Treatment of European Foulbrood

By W. S. Pangburn

Read before the students of the Short Course at Ames.

THE subject of European foulbrood is a very important one to the beekeeper. I think I am safe in saying that it is the most important subject with which we have to deal at the present time.

Formerly, the producing of a maximum crop of honey, and disposing of it to the best advantage, were the two subjects that deserved our most careful attention.

Shortly after the European war began, the selling of honey became the least of the beekeeper's troubles, and will be so long as it lasts.

Producing maximum crops is still a vital question, owing to the fact that European foulbrood is ravaging the apiaries in many spots, and maximum crops are not produced in localities where it exists.

It matters not whether you have had the disease, whether you now have it, or whether you have never had it. It is a menace to the industry so long as is exists, for one never knows when or where it will break out, either for the first time, or anew.

I do not know of a man who would make the statement that he knew all about the ways the disease was transmitted, and could give a treatment that would cure it to stay cured.

It is true, there are a number of treatments that will clean up the disease for the season. but no assurance for the next year.

It seems also to be true, that some methods are a success in some localities and a failure in others. Why this is so is not entirely clear.

J. J. Wilder taking recreation at his Florida home

In my own opinion, the disease is not so virulent in some localities as in others, else it would seem that if a treatment had merit in one locality it should work in another, but we know it is not always the case. For instance, about the time the disease broke out in my own yard, Dr. Miller wrote an article for the American Bee Journal, with the head lines "European Foulbrood at Dr. Miller's." In this article he gave three different methods that he had used with success, two of which I tried, with little success.

Mr. Holtermann, of Canada, tried his methods, also Wesley Foster, of Colorado; that is, caging the queen for ten days and then releasing her on the same set of combs.

Mr. Foster came out with an article condemning the plan as not successful with him. His opinion was identical with mine, that the disease reappeared in far too many cases to be relied upon.

I also found that a queen caged in the height of egg-laying for ten days was, in most cases, quite as poor as a dead one. I have not been the only beekeeper that has found this true.

The Joint Grass creeps over the white sands of Florida, taking root every two inches, and resembling a spider.

Mr. Holtermann, in the American Bee Journal, said he could not help but think that Dr. Miller had the disease in a very mild form to yield to this treatment, and I thought so too. Later I learned something that verified that opinion. It was that Dr. Miller had the disease in his yard for three years before he knew that he had it, and I am quite sure that if the disease had been as virulent as it was in my yard, he would have realized before three years that he had **something,** else he would have had no bees. I am satisfied that two years, without treating, would have put us out of the bee business.

This statement is not given with any intent of belittling Dr. Miller, because I have not the slightest doubt that the methods he described were a success with him. But the idea I wish to convey is that the same treatment will not always work in different localities, and also that the disease seems more virulent in some places than others.

I fully realize that it is a very hard matter to outline a treatment that will suit any and all conditions. We do not always follow the same line ourselves in all cases. There are many things to be considered, such as the man, honey flow, weather conditions, the time of year the disease appears, the condition of the bees, etc. So it is only possible to outline the main points.

First, if you have never reared any queens, you should learn how at once. Any beekeeper should know enough about queen rearing to rear his or her own queens, as a young queen from a good vigorous strain of Italian bees is the "sine qua non" in cleaning up the disease.

When you find a colony in your yard is resisting the disease, naturally you will want to breed from that queen, and if you cannot rear your own queens, how are you to do it?

While most any strain of Italians would be better than hybrids, if they were not inbred bees, simply because they are Italians does not spell success in cleaning up foulbrood. That there are strains of Italians that are more immune to the disease than others, there seems to be but little doubt.

When you find a queen that has gone through an epidemic of European foulbrood with no sign of the disease, spot her for your breeding queen. You may get fooled on her the following year, but keep on trying until you do find one, then rear your cells from her. But do not make the mistake I did once and get so struck on a queen as to practice inbreeding and have it to do over again.

N. E. France says inbred bees will succumb to the disease fully as quickly as hybrids, and I found it true. Use at least two strains in your yard to avoid this, and more would be better.

If you will paste these last remarks in your hat, and work along these lines you will be on the road to success.

As soon as you are aware of the presence of foulbrood in your apiary, or in your locality, examine every colony carefully, and at least once a week after. Cage or kill the queen in all diseased colonies **immediately,** not the next week. The longer you leave her free to lay after the first diseased larva appears, the more disease you will have to clean up. You will be surprised, if you have never had any experience with the disease, to know how bad they will get in a week's time if left to themselves.

After going through the yard and marking all colonies diseased, also the strong and the weak ones, unite the weak colonies until they are strong, even if it takes 3 or 4 piled up to make them so. You are cutting down the number of cases to be treated, saving money for queens if you have to buy, and lessening the chance of infection to healthy colonies. You will not need to save any for experimental purposes, for in all probability you will have plenty of them before the season is over.

You should not expect a weak colony to clean up even under the most favorable circumstances. So do not try it, as it will be time worse than wasted. In ten days or two weeks (depending on circumstances) you will be ready for the cells from your breeding queen, if you have one, else young queens from some good breeder, which should have been ordered previously to introduce to these colonies that have had their queens removed.

In our own yard we figure on using ripe cells to graft at this time, as we have better success with them than with queens, and if we have plenty of cells we do not always wait ten days before we graft, because it is some days before the young queen begins to lay.

I might explain more fully as to why we prefer the cells to queens. It sometimes happens that in stacking up colonies a queen cell is overlooked at the time of cutting, and while a very small per cent of queen cells hatch from a foulbroody colony, it does sometimes happen, and you have a virgin running somewhere in the hive bodies. Even though there is no virgin in the hive, a colony that has been without a queen for ten days or longer is the hardest kind of a colony in which to introduce a queen, as any good beekeper knows.

If you are paying a dollar apiece for your queens, and this virgin is not found before you introduce your queen, you have lost your dollar, and this might happen often enough with the novice to make a very dear colony of bees.

If you graft a cell and the cell is O. K. after 24 hours, you are safe in thinking they have no queen. If the cell is destroyed, you can thank yourself that it was your cell instead of the dollar queen.

If we are using queens from some breeder, and are ready to introduce them, and the bees have not cleaned out the dead larva, we aim to shake them from the diseased combs onto clean ones, in a clean hive. We have at times in our yard several colonies which we call hospital colonies, and we give the diseased combs to these colonies to be treated later. This lessens the chance of disease breaking out the second time, and the process of cleaning up repeated, which should be avoided if possible, as, if you don't watch out, the summer will be gone, the harvest ended, and your colony not saved.

If the disease appears in your apiary early in the season, before many young bees are hatched, and your colony has had no chance to make up for winter mortality, with perhaps cold, damp weather, and no flow, you have about the worst condition imaginable to fight European foulbrood. The fact is you can't fight it until conditions change. Robbers are bad at these times, making examinations exceedingly difficult, and with these conditions, if you are not a first-class beekeeper, you will probably spread more disease than you stamp out.

When fruit bloom is out and the bees are busy gathering pollen and honey, is the proper time for the average beekeeper to commence operations. But waste no time when the conditions are such that you can work, and remember, you must have a flow, either natural or artificial, to accomplish anything in fighting foulbrood.

If you have followed the outline of treatment I have described as thoroughly as you should, the apiary should be in a fair way to clean up, and by having some swarms at this time, you can boost it in the way that I shall now describe.

You will ,in all probability, unite some swarms, which will cut down your number, and to follow this up without any increase, you soon would be out of bees. I think I hear someone saying, I could start nuclei and increase without natural swarming. I can only say, you might, and you might not. Remember, you now have European foulbrood, and nothing but strong colonies should be tolerated in the yard. You should allow no robbing now. If you do, likely enough your summer's work will come to naught. Personally I do not want any nuclei to bother me as long as I know foulbrood is close by.

When a colony swarms, the queen is picked up at the entrance, as we always clip our queens. The old hive is removed from its stand and the new hive with a clean set of combs in its stead, a queen excluder on top of that, then the supers from the old colony, with the caged queen at the entrance.

The brood from the colony that has swarmed is examined closely for any disease. If it shows no disease, it is put on a stand and left to rear its own queen, and perhaps a bunch of nice cells that can be used to good advantage at this time. If it shows any trace of disease it is stacked over some colony that has been treated previously, and has not yet a queen; **never** over a colony with a laying queen. In a few days the young bees from the hatching brood will give the colony a boost that it badly needs, and there is nothing like young bees to clean out the diseased combs, as it is in their line of business.

We never aim to allow a queen cell to hatch from a queen that shows disease. This plan is followed as long as we have swarms and colonies that need help. It is no serious setback to the colony that swarms, and it is a decided boost to those colonies that contracted the disease and had their queens removed, and soon puts the whole apiary in condition to gather honey and strengthen up for fall.

In summing up, there are 8 points I would like you to remember:

1st. Learn to rear your own queens.

2nd. Remember that a young queen from a vigorous strain of Italians will come nearer to cleaning up the disease than any other thing.

3d. Do not inbreed your bees.

4th. Italianize with a good resisting strain of bees before you get European foulbrood.

5th. Cage or kill the queen **immediately** after finding the first cell that shows disease.

6th. Examine your bees at least once a week after you are aware the disease is present in your own yard, or in your neighbor's.

7th. Allow no robbing.

8th. Do not treat a weak colony for foulbrood. You will not succeed.

Center Junction, Iowa.

## European Foulbrood and Its Treatment

By C. C. Miller

A GOOD friend, who knows a lot about bees, and for whose opinions I have the highest respect, has written me a few words about my theory as to the way in which European foulbrood is continued and spread in a colony into which the disease has been introduced, and also as to its treatment. The theory is this: If you cut or crush bee-larvæ, the workers eagerly devour the juices; when a colony is brought to the point of starvation the bees tear open the larvæ, suck their juices, and throw out the white skins. Similarly, when the miscreant of European foulbrood *(bacillus pluton)*, gets in its work upon a larva, and while the juices of the larva are still palatable, they are consumed by the nurses and fed to healthy larvæ. These become diseased, and in turn their juices are fed to other larvæ, and so the work goes merrily on. But the time is limited in which the juices of an infected larva are sufficienly palatable to be consumed, and as soon as sufficiently offensive they are no longer sucked up by the nurses. So if the laying eggs, and the consequent rearing of brood, be broken in upon for a sufficient time, there will cease to be in the hive the diseased larvæ of the right age to be consumed, larvæ coming into existence subsequently will not be fed infected matter, and a cure will result.

My friend says: "The question which I would like very much to have you or someone else answer is, how in the world does European foulbrood ever appear the next spring if the method of transmittal is through the eating of freshly dead larvæ? There must be some other way, probably through the eating of infected honey, and yet when we know how readily a colony can get along with honey from affected colonies, if the colony getting the honey is good and strong and of vigorous stock, this hardly seems credible."

I can easily see how this objection might seem insurmountable, for one might say, "If cessation of egg-laying for 10 days proves a cure, then after a cessation of months, as in winter, surely there should be no question as to a cure, and yet, we know when spring arrives business opens at the same old stand."

I am not certain that I can give a satisfactory reply to this, yet reply is not utterly lacking. Although nearly all cases of transmittal may be in the way I have indicated, yet that is not the only way, and my friend is quite right in saying, "There must be some other way." That other way may be through the introduction—I think we might say the accidental introduction—of a spore; for in a way the usual introduction is not accidental, but intentional, at least so far intentional that it is the intention of the nurse-bee to feed the infected juices, whereas there is never any intention to feed the dried spores. It is to be remembered that in a colony, or in an apiary, where European foulbrood has existed for even a few weeks, these spores, or dried seeds, abound by the million. They are scattered over the combs and in the cells, on the floor and at the entrance, and all over the ground for a distance of rods. Is it any wonder that now and again one of these spores, possibly sticking to the toe of one of the nurses, should accidentally fall into some baby's porridge and make a start of the disease? Take a bad case in the fall, where multiplied millions of spores are all through the hive, the bees too discouraged to clean up, and is it at all strange that the following spring a few spores should find their way into the food of the larvæ? In line with this, you will probably find that early in the spring the case is not nearly so bad as it was the previous fall; indeed, you may not detect it at all until June. This accidental swallowing of a spore by some baby may account for the fact that after a cure has seemed complete the disease may turn up again in the future.

Now, my friend, I'm not sure that this answer to your question will satisfy you, and to tell the truth, it doesn't fully satisfy me. By any sort of reasoning I can use, it seems to me it ought to be the rule that the cessation of brood-rearing for the winter should at least generally result in a cure, and it doesn't. To be sure, I suspect that if close watch were kept it would be found that cases of over-winter cure are not altogether wanting. But the explanation I give is the very best I can do, even to accommodate so good a friend as you. If you can offer a better, I'll gladly accept it, or if you'll offer a theory more easily accordant with all the facts, I'll drop mine like a hot potato.

You further say, "You state that you do not find dead larvæ after they have been dead long enough. I am wondering whether three or four days might not be just as good as ten, if the condition of the larva was the determining factor'.' What a revolutionist you are! Of course, you know that I was trying to follow the Alexander treatment, and by mere blunder made the time of queenlessness shorter than he. His plan was to have the colony without egg-laying 27 days, and he was very emphatic that it should be "not a day less." I was criticised very severely for my presumption in cutting down from 27 days to 16, and now you come suggesting 3 or 4! Well, between you and me, I was never very sure about that 10 days, but 10 is a round number, and I wanted to be on the safe side. As to cutting down still further, suppose we figure a little. The larvæ are fed during a period of 5 days; so if we should stop egg-laying for 5 days it would seem it might stop the continuance of the disease. But is a larva effective as a disease-carrier at any time of its 5 days' existence? I don't know. I doubt. It may be fed infected pap the minute it hatches from the egg, but that doesn't immediately kill it. It may be, for anything I know, 2 or 3 days before it gets to the point where the nurses tear it open and suck its juices. Indeed we know that some do not reach that point before they are sealed over. So it is possible that no larva is torn open until it is 2 or 3 days old; in other words, it is effective as a disease-carrier during only the last 2 or 3 days of its larval existence. In that case it might not be very hard to grant your 3 or 4 days of egglessness.

Here's something that seems to me corroborative. Some have reported the curing of European foulbrood by merely changing queens. At least this treatment was successful in nearly all cases. Now, when a laying queen is removed and a new one is introduced, there is a break in egg-laying, which may be 2 or 3 days. I suspect it was the break in egg-laying rather than the change in queens that made the cure, and if that short break was successful in these cases, why not as short a break in general?

Of course, in so short a treatment the dead larvæ will not all be cleaned out; plenty of black ones more or less dried up will be found in the cells; but the bees will not eat them, and so they will not continue the disease. It's the big yellow fellows that count; if none of them are found present we may say, "It's a cure," no matter how many black larvæ are present. To be sure, there's always the possibility that a spore from some black larva may accidentally get into baby's dinner, but that's exceptional.

Even supposing a treatment of 27 days—or even 10 days—should be always successful, and that not more than 9 out of 10 cases should be successful with 3 or 4 days' treatment, I'm not sure but I should prefer the shorter treatment. For would not the gain in brood more than repay the few cases needing to be treated over again?

Some have reported success by merely putting the brood of a diseased colony, together with adhering bees, in an upper story, leaving the queen upon foundation or empty combs in the lower story, under an excluder. This may be accounted for by saying that nurse-bees are not inclined to travel far on the combs, and so do not go from the upper to the lower story to carry the disease. This may well be true, for when a colony is first attacked by the disease it will be found confined to one comb for some time, perhaps a week.

I've tried to answer as best I could; here's a question I leave you to answer. Once in a while a case will be found, not very bad, and without anything being done for it a later examination will show that the disease will have disappeared. On what sort of theory will you explain that?

Let me give you another item. You may know that during my first experience with European foulbrood I treated it the same as American. I assembled the diseased brood from all over the yard and piled them on top of one of the diseased colonies, several stories high, intending to treat this colony after the brood in the upper stories had emerged. After some three weeks I lifted off the upper stories and opened the brood-chamber with no little interest to see what I should find after an aggregation of so much foulness. To my surprise, I found the disease was gone, not a yellow fellow left, and, so far as I remember, the disease did not show up again in that colony. Why? Did the developing of such an immense force of young bees have anything to do with the case?

Marengo, Ill.

After having written the foregoing article, I sent my friend a copy of it. As soon as he could he wrote back telling me that *(bacillus pluton)* doesn't have any spores, intimating an easy way for me to make correction in my article before it got into print, so as not to expose my ignorance. I think, however, that I'll make no correction. Exposure may be good for me, for the fact is that I supposed no bacillus was ever so thoughtless as to be without its spore, and perhaps I ought to be more careful as to writing about things concerning which I know so little. So, instead of making any correction, I'll let you make your own corrections, after reading Dr. Phillips' letter, in which I am sure you will be interested.

C. C. MILLER.

---

Washington, D. C., May 25, 1918.

Dear Mr. Miller:

Your interesting article, prepared for the American Bee Journal was received while I was on the road. Our Mr. Sturdevant took it with him to Ithaca, N. Y., where he is to work on European foulbrood for a while and where I met him to help arrange some of the details. We went over the article together, and now I have brought it home to acknowledge its receipt. This will explain the delay.

There are one or two comments, one especially important, and which I think you will want to use as the basis of a change in your American Bee Journal copy.

You refer several times to spores, while *(bacillus pluton)* does not form spores. This fact upsets things a bit, for it makes it all the harder to understand how the bacilli live over winter. However, you can simply change the word "spore" to "bacterium" and not materially change the sense. We do not know how the vegetative bacilli can live over winter, and, since they cannot be grown on any bacteriological medium, it is difficult to get light.

You also speak of a "bad case in the fall," but such a case is as scarce as hen's teeth. We have had samples here every month in the year, but after July it is usually dried material.

You could be more definite on over-winter cures, for they are not rare. In other words, when the disease disappears in July, if conditions are right for preventing the disease, it frequently never reappears.

I believe I told you that my father's little apiary was 100% European foulbrood in 1915, when I went out in June. I showed my brother how to shake on drawn combs (my second plan of treatment.) He introduced Italians and (most important of all) he built winter cases. No disease has been seen in the apiary since, but the region is full of it. I examined the apiary one week ago today and the colonies average brood in 15 frames. I have an idea that the folks at home will not experience a sugar shortage this year. A few colonies now have mismated queens and I hope to get out home and requeen these in August.

E. F. PHILLIPS.

---

## Beekeeping in Jerusalem

(Concluded from June)

By Ph. J. Baldensperger

THE garden and thicket near the slopes of Moriah and up to the slaughtering place in the open on Mt. Zion were then a diminutive bee paradise. I found an ample collection of honey-plants all about the fields, in the hedges, on the ruins of crumbling houses, and often the city walls were lined with them on the inside—for seen from the exterior the walls are perfectly clean except near the tower of Hippicus, and the Jaffa gate dating, no doubt, from before the final fall of Jerusalem under Titus.

Broad-beans *(fava)*, a favorite plant with orientals for kitchen use, were largely cultivated in early spring and gave plenty of honey and some pollen. The dried stalks and leaves are excellent food for camels and cattle.

Cactus hedges, originally planted to hedge in the fields, had become the principal plants in some fields there. The big yellow and orange flowers give an excellent honey in May, as well as plenty of pollen for rearing brood. Camels feed on the tender leaves, and the impenetrable thickets were shelters of generations of dogs—the hygienic police of oriental towns—where refuse is continually thrown into the streets and hardly ever swept. Hygienic principles have certainly been applied since the Allies under General Allenby have once more delivered Jerusalem from the hands of the Turks.

Yours truly

Ph. J. Baldensperger, who is writing for us a series of articles on Beekeeping in the Holy Land.

Dandelions, marigold, mignonettes and one or two borages grow all about the vacant spaces and bees hum on them gaily.

Big mignonette, as well as mustard, seemed at home in the walls, and great shrubs of capers *(Capparis spinosis)* carpeted the walls, and the graceful white flowers invited bees. Some authors thought this plant the hysop of Scriptures. Henbane *(Hyoscyanus niger)* and Horehound *(Marrubium vulgaris)* grew about the wrecks of old buildings and the honey of the latter plant was so agreeable that we called it Rah-el-halcome, as resembling in flavor the "Turkish delights," a sugar pastry usually prepared in Damascus.

Select cauliflowers grow all about the dung hills of Zion and Moriah, and the "fellahin" choose the best plants for seed; the immense bushes give much honey in autumn. Except for these last, all above-named honey-plants could be classified as swarm-preparing flowers, according to the prevailing east or west winds. The hives were usually in good shape for the best honey-plants in June and July.

Wherever the bees could reach the luxuriant thyme fields, which throve around the town, they made a splendid harvest. Our Nahale used to say that the thyme gave the best honey to seal the combs and then it was time to take out the crop. It is identical with the renowned Hymettus honey of ancient history. The most progressive of Judean kings, Herod the Great, had apiaries around his private estates, in his paradises of Ain-Rimmon and Herudium (a desolate paradise now), and Jericho. He used to send honey to the Roman court, and since then Jericho honey was greatly demanded by the Roman emperors. Cleopatra received the beautiful estate of Jericho with its select plants and hives and enjoyed them for some time.

The "fellahat" (peasant women) of Siloam and El Tur (Mount of Olives) almost exterminated the magnificent thyme bushes all around the town to use as fuel and for culinary purposes. They prepared their bundles and carried them home on their heads as if they were great wheels higher and broader than themselves. We used to admire their dexterity with their immense load, in perfect equilibrium as they toiled up the hills of Zion towards their villages. They sang in unison or chattered as if they were picnickers. Their assiduity in plucking up the precious bee-plant has rendered beekeeping almost useless between the walls and the road leading all around the town. There was originally a broad and deep ditch sometimes over a hundred feet wide. The ditch has partly disappeared.

From the Jaffa gate to the corner of Tancred's heights on the west, the

Greeks and Armenians had buildings and olive yards. Around the Jaffa gate and the Tower of Hippicus a deep ditch with a luxurious growth of honey-plants embellished this part, at least from the bees' point of view. From Tancred's Heights (the part whence Jerusalem was stormed in 1099 A. D.) to the Forth of the Storks, the ditch was in good condition and afforded plenty of food for birds and beasts.

As carcases were thrown in, dogs, ravens and vultures found food by day; jackals and hyenas carried off what they could by night. The land was manured and gave plenty of honey-plants. Skeletons were left to bleach in the sun forever. From Stephen's Gate to the corner of Moriah the ditch was transformed into a Moslem cemetery, where they repose near their sanctuary till Judgment Day. Olive trees grow on the slopes toward the Cedron, and innumerable squills *(Scilla maratima)* grow around the Moslem and Jewish cemeteries beyond Cedron.

Squills begin to bloom about the 15th of August, a sign, our Nahale used to say, that the Nile in far away Egypt was overflowing. The flower stalks are much visited by bees and they carry home quantities of white pollen.

From Moriah to Zion and around to the Tower of Hippicus the ditches have been filled up with city refuse, carried out through ages. Centuries of continued heaping up in the ditches has lowered the road on the south side, and often the road resembles a trench of which the walls are piled rubbish. The big, slanting rampart below the Tower of Hippicus, sometimes called "David's Tower,' was full of bee-plants, the bottom of the ditch was overgrown with cactus hedges, which gave plenty of bee forage in spring, and prickly pears at the service of whoever could reach them.

Common marjoram *(Origanum vulgaris)*, as well as different species of peppermint, grew here and there. Not only the bees found food there, but the natives used the leaves of the Traatar, the first-named aromatic plant, which they dried in the sun, crushed and ate as a condiment with their bread. The stout shrubs of Pistachio had never time to grow very high, as they were cut down every year, yet the bees found an odoriferous, resinous matter for use in their hives.

How we envied the Tapji (artilleryman) when he was seen in the midst of the tropical flora, cutting down with his sharp sickles big bunches of rose-colored antirrhinum purpureum. I saw later that the big flowers containing honey for more than one bee each were never utilized by the domestic honeybee. The big blue-black giant bees, the wood bee, bit the flower open at the base of the calix and pumped out the nectar in this original way. Bumblebees of different kinds also sucked at the deep-calixed flowers.

In Jerusalem, as elsewhere, I found in later years that almost all native beekeepers distinguished two very different kinds of bees, one very gentle, the other furious. In Egypt they called the furious kind Shami, or Syrian bees, and the gentler kind Baladi, or native bees. Egyptians are, as a rule, more submissive than the wilder, indigent Syrians. The same must hold true of their bees.

Nahale, as well as others of his school, assured us that there were two very distinct kinds in Palestine—the Harthi (agricultural or ploughing bee), were the more infuriated, and the Malki (possessing or royal bees). The Fellahin are considered less civilized and are warlike, whilst the upper classes in towns were gentler and submitted to royal laws.

The Harthi build long combs like furrows made by the plow, from the back to the flying hole, while the Malki made beautiful circular combs like full moons, said Nahale. When he examined the latter bees he blew them back with the tiniest whiff of smoke and he could take out the honey without receiving a single sting. Not so with the Harthi; all their combs ended at the back, and he had all the streets filled with bees. They were managed with great difficulty, as every modern beekeeper understands, and this haphazard building made them a new race. Even here in France, I often heard amateurs talk of a furious and a gentle kind of bees, and they were astonished after having warned me of the fact, to see me manipulate the furies just as easily as the gentle ones. Most such persons cannot understand the secret, which lies wholly in the quality of smoker, or also, very often, in the harsh hands of the beekeeper himself.

Harthi and Malki bees were as busy carrying honey to their hives in spring, when rain did not fall, one as the other; both suffered equally from drought when the drying winds from the east or south left no parcel of moisture in the nectaries, and the odoriferous thyme bushes were almost burned by the fierce sun.

Nahale would usually come out to Zion's school, where he had the bees, on or about the 15th of August, which, according to the Catholic church, is the Ascension Day of the Virgin Mary. But Nahale was a stout Moslem, and I often asked myself how he adhered to a Christian date.

The overflow of the Nile, at least the springing up of the high stems of the squills; the feast of Paphos in Cyprus, to the feast of the virgin; the worship of the Judaites in the days of Jeremiah, to another regina or queen of heaven; the wax offerings to Ceres in Greece; the offerings of first fruit to Demeter in Sicily, or to Derketo at Jaffa, before Hebrew history—all of them point out to the same origin, with almost the same ceremonies, with products of the honeybee as principal offerings.

No wonder that Nahale, who knew Miriam el Bathul, that Shpeta, an orthodox Greek Christian who knew El Adra Miriam, all respected the same person in the same place at the exact season as it had been practiced for many thousand years, though giving different names.

Harthi and Malki bees were forgotten as well as Ceres, Ashthoreth or Adra, for on the 15th day of August it was honey day, and the beautiful combs, thick with thyme honey, drew out one Masha Allah (What God hath granted) after the other. Sober in words, Nahale did not say much more, but Shpeta in Ramler told me that the image of the Adra, or of her hands were perfectly acknowledged in the honey-combs. A prior of the Greek convent explained how the objects of value were found in the day that she came out of the sea—evidently she was Ceres, but christened Mary.

Our neighbor across Hinnom el Asalli was a wealthy descendant of the honey man who gave his name to a street in Jerusalem.

He had gathered his wealth by selling Asall (honey) taken from the apiaries which were built against the high city walls of Zion.

Jerusalem on the west side. at the left, the valley; in the center, Notre Dame de France, near Tancred's Heights; at the right, the Tower of Hippicus; the town walls in the foreground.

Honey was given to us at breakfast when we were infants in Jerusalem, and we have not yet become tired of it, but take it once or twice daily now, and the grown-up girls enjoy it greatly.

Nice, France.

# An Open Letter to F. Dundas Todd

By A. C. Ames

I HAVE carefully read your article in May issue of American Bee Journal. As you used my name, I feel free to reply to you. However, you placed me in Iowa, which is an error. I have been on the apiary inspection force of this State (Ohio) for five years.

I believe, Mr. Todd, if you were on the inspection force of some of our eastern States you would have a different idea in regard to the handling of the bee diseases than you have. One of the few things that are established in bee culture is that different localities require different methods of management.

Your method of treatment, or rather eradication of bee diseases, will be successful if you do not have the following conditions to contend with. In a State the size of Ohio it would take one hundred to one hundred and fifty men working the entire summer to inspect every colony in the State. You will admit that it is necessary to have trained men for this work. Where are we to get the men? We have trouble obtaining satisfactory men with only three on the force. Is there any State in the United States or Province of Canada that will furnish one to two hundred thousand dollars to do this work, and continue it one year after another? No. The beekeeping industry is not important enough to justify such an expenditure. We, of course, do not consider beekeeping of minor importance, but the general public does, and it does not compare with other things agricultural—either in value of output, number of men employed or of capital invested.

Another thing—what are you going to do with bees that cannot be reached? I believe you will admit that there is no difference between our so-called domesticated bees and wild bees. I believe there are as many bees in trees, houses, etc., in Ohio, as there are in hives. I know of one wood lot of 2½ acres that was cleared and contained thirty-five bee trees.

This probably is an exception, but with careful search I feel certain that bee trees can be found in nearly every wood lot in Ohio Bee trees harbor disease—I have found it there, and have had beekeepers that I have made clean up prove it to me and ask me: "What are you going to do about it?"

Another thing—you have no large cities in your territory, or at least none that receive honey from all points of the compass. Around all our large cities, such as Cleveland, Cincinnati, Toledo, Columbus, etc., we have continual outbreaks of disease. Why? Because the empty sections and containers are thrown out and bees usually clean them up. That is well and good, but if the honey came from a diseased apiary, what then? You would soon have every beekeeper in or near our cities burned out of business.

We in Ohio do make an honest effort to compel our queen-breeders to keep their yards free from disease, and, what is more, we usually succeed. Our queen-breeders never know when to expect us, and they also know that if we find disease they will be placed under a rigid quarantine. That is not a nice position to be placed in—with orders to be filled and general queen-breeding operations under way. When this happens it usually makes a break that pretty nearly spoils a breeder's whole season. As a result, our breeders are careful. To do them justice, however, I believe they would be careful anyhow from a business point of view. They are a pretty good sort of men.

Now, I want to tell you about my own yards. In 1916 I had the worst attack of adult bee-trouble I ever saw. What it was I do not know. Dr. Phillips, E. R. Root, Mr. Bocock from England and others visited my apiary. None could offer any real advice. All, however, advised to requeen, which I did. The disease gradually abated and by late fall very little could be found. It cost me several thousand pounds of honey, but as a result of the re-queening I had all my bees in good condition for 1917. I, however, raised my queens from an Italian strain that was not resistant to European foulbrood. I did not give this disease any thought, because, so far as I knew, there was none of it nearer than fifty miles. Imagine my surprise to find European foulbrood late in May, 1917. This required re-queening again, and a careful watching of the brood-chambers. When I first discovered this disease I found three cases at home and two at the outyard. Over 50 per cent of my bees were diseased at some time or another through the season. I re-queened everything, but I took 100 pounds average extracted honey, although the season was generally considered a failure. You do not state as to your method of handling European foulbrood, but if you handled it as you do the American you would have to inspect the diseased yard every few weeks all summer, and you would make no headway, for it can only be controlled by a resistant strain.

Many of our best beekeepers in both Canada and the States consider it a greater plague than the American.

This spring I have 130 colonies in the best condition I have ever seen bees at this time of the season. My winter loss was about 5 per cent—mostly due to starvation, as the bees were under 6 to 8 feet of snow for about eight weeks, and while under the snow started brood-rearing, which exhausted their stores. I winter in four-colony cases. This spring I have so far found twenty cases of American foulbrood, but no European foulbrood. I expect it to show up, though. The wonder to me is that none is in evidence yet. It may be due to the fact that I did not allow a single colony to become badly diseased last season, as I examined every brood-nest every seven to ten days throughout the season.

But to return to the American foulbrood I have this season. To treat that by your method of eradication we would burn those colonies. There is not a colony in the lot in which a dozen diseased cells can be found, and the colonies will average seven combs of brood today, with the clover flow thirty days off. The most of those colonies are carrying supers today, or they would swarm out during the fruit bloom, which is now on. To burn those colonies would mean the burning or destroying of—if we have a good season—3,000 pounds of honey and the loss to me of a round $500, and this at a time when we need every last ounce of food possible to obtain. I should resist the burning of those colonies by every means in my power.

I am not saying that it will not work with you, for under your conditions it probably will. But I do contend that under conditions as they exist in Ohio, your plan will not work, and I do believe you are making a mistake in advocating such a plan for universal use. One of the greatest faults I have to find with our bee journals is the publishing of plans of different sorts that for their success demand a condition that is not universal. It may be permissible to publish these plans, but qualifying statements should be made.

To refer again to my bees. I am certain that my outfit is in far better condition because of my having had the diseases, than it would have been had I not had the diseases. The disease made me do things that I knew ought to have been done that I probably would have neglected. In other words, it made me give my bees close attention and do the things that you and I and other apiary inspectors are advising beekeepers to do, that we do not do ourselves.

I do not believe there is any apiary inspector who can examine a large apiary known to be diseased and discover every case of disease present on one inspection. I have examined my yards three times this spring and each time I have found additional cases, and I expect to find more, and I have had no robbing.

For several years I have held that with us it was too much to hope that we can ever eradicate bee disease. But we can teach our beekeepers how to handle the disease, and that is what we are trying to do.

Weston, Ohio.

# Women's Clubs and the War Foods

By Mary G. Phillips

IT used to be that mention of Women's Clubs made men, and many women, smile, and some supposedly intelligent women even prided themselves upon the fact that they did not belong to a club! But that day is past, thank goodness! and the way in which groups of women are begged to help, or to use their influence in all sorts of civic and national problems, is sufficient evidence that clubs justify their existence. Just as important as the aid they render a community, however, is the inspiration and stimulus they give to the individual member, and it is this which we miss if we drop out of our neighborhood clubs in order to give more time to war work. I believe that it is far better to keep your club, but turn it into an instrument for helping win the war.

Of course there are clubs, and clubs. In one small community of my acquaintance, composed of about thirty-five families, there were three flourishing clubs several years ago. One was a sewing club which met at noon, ate a sumptuous lunch, and spent the afternoon either mending or embroidering, according to the size of the family of the individual member, and talking, the discussion ranging not far from kitchen and children. The second club was frankly a card club, composed of women who felt the need of relaxation from the cares and responsibilities of housekeeping. These two clubs flourished side by side for many years, and it was not until three years ago that the growing need for something different crystallized into a new club. The women who formed this last one felt that they did want the stimulus that comes from rubbing up against other minds, and they did want their thoughts turned occasionally into channels other than those which had to do with their everyday tasks, but they wanted the new channels to lead somewhere. So the new club, scoffed at as "high-brow," affiliated immediately with the County Federation, in order to know what lines of helpful work were being carried on and to become a part of the large movement for better schools, better care for sick and needy children, etc.

Now, what has happened to these three clubs since the war changed our whole fabric of daily life? At first, the more thoughtful and earnest workers dropped their club membership to enable them to give the time to Red Cross work in the city. This made the clubs sit up, and it was not long before each made its decision as to its future character. The sewing club dropped its luncheon, each member bringing two sandwiches for herself, and the sewing became Red Cross work. This club is now an active Red Cross Unit, and every woman in the town works there instead of taking the long trip to the city. I regret that the second club remains a card club, for these poor, overtaxed members, carrying so great a part of the burden of war, feel more than ever the need of relaxation. The third club, after much deliberation, decided to keep its identity and to help the war work in avenues other than the Red Cross. With the insistent needs of the Red Cross ever before us, it is hard to remember that we must not relax our efforts one iota in helping on the usual work which falls to women's lot in a community. So this club is continuing the encouragement of gardening and canning in the colored settlements nearby, is still carrying on the work of the visiting nurse in the county, and other such work. Naturally, the character of its meetings has changed materially since the war began, and that brings me to the point of my story—the connection between clubs and food. Every club should be a center of food conservation today. Is your club doing it? If not, cannot you see that every meeting includes a discussion of the latest news from the Food Administration?

For the June meeting, the Friday Club had a Hoover Day, when each member pledged herself and her family to wheatless meals until harvest. The wheat substitutes, rice and rice flour, cornmeal and corn flour, barley, oatmeal, potato flour and peanut meal formed the basis for the program. Each talk on a substitute was only five minutes long, but in that time much was learned concerning the production and use of each one. Food Administration posters and Hoover costumes added a touch of color to the room, and on the table were all sorts of delicious foods, breads, muffins, cakes and puddings, made entirely from substitutes. Each member had contributed her best recipe and a sample. As these were tasted and discussed, two things became clear—that better results are obtained generally if you mix two substitutes instead of using just one, and that you can use your old favorite recipes if you follow the Food Administration table of substitutions. This table is invaluable if hung on the kitchen wall where it may be consulted conveniently

**Measurements of Substitutes Equal to One Cup of White Wheat Flour**

Barley—1⅜ cups.
Buckwheat—⅞ cup.
Corn flour—1 cup (scant.)
Corn meal (coarse)—⅞ cup.
Corn meal (fine)—1 cup (scant.)
Corn starch—¾ cup.
Peanut flour—1 cup (scant.)
Potato flour—¾ cup.
Rice flour—⅞ cup.
Rolled oats—1½ cups.
Rolled oats (ground in meat chopper)—1⅛ cups.
Soy bean flour—⅞ cup.
Sweet potato flour—1⅛ cups.

You see from this that you can use any recipe that you like, the only difference being that instead of using wheat flour you substitute the amount of some other grain or a mixture of two, according to this table. The batter often looks too thin or too thick, but you will find that if you have measured accurately (all measurements being level), the result will be good after baking. All substitute mixtures should be baked **more slowly** and **longer.**

The best cakes made from substitutes at the meeting were the three for which I give recipes below. The sponge cake was especially light and tender, and as corn flour is not very expensive, it does not make an expensive cake, particularly if you have your own eggs:

**Corn Flour Sponge Cake**

4 eggs.
2 tablespoons lemon juice.
⅞ teaspoon salt.
1 cup sugar
1 cup corn flour

Separate the whites and yolks of eggs; beat yolks until thick and lemon colored, then add the lemon juice and salt. Add sugar and beat until light. Fold in the well-beaten whites of eggs and the sifted flour and bake in a moderate oven.

**Spice Cake—Using Barley Flour**

½cup fat.
⅜ cup sugar.
1 cup syrup or honey.
3 eggs.
¾ cup milk.
1 teaspoon vanilla.
½ teaspoon ginger.
6 teaspoons baking powder.
¼ teaspoon salt.
1 teaspoon cinnamon.
½ teaspoon cloves.
1 teaspoon allspice.
3⅜ cups barley flour.
1 cup raisins.

Cream the fat, sugar and egg yolk. Add the syrup and mix well. Mix or sift the dry ingredients and add alternately with the liquid. Add the flavoring and fold in the well-beaten egg whites. Bake for one hour in a moderate oven, increasing the heat slightly after the first twenty minutes.

**Chocolate Cake, Using Buckwheat Flour and Ground Rolled Oats**

½ cup fat.
¾ cup sugar.
1 cup honey or syrup.
3 eggs.
¾ cup milk.
1 teaspoon salt.
1 2-3 cups buckwheat flour.
½ cup ground rolled oats.
6 teaspoons baking powder.
1 teaspoon cinnamon.
2 squares chocolate.
1 teaspoon vanilla.

Cream the fat, sugar and egg yolks. Add the honey and mix well. Add the dry and liquid ingredients alternately. Add flavoring and melted chocolate. Fold in well-beaten egg whites. Bake about one hour in a moderate oven, raising the temperature a little after the first twenty minutes.

Going without wheat seems like a little thing to do when we read of the ration our American prisoners are living on in the prison camps of Germany. Here is a sample:

Breakfast—Acorn coffee, two slices of bread made of rye, sawdust and potato flour.

Dinner—Soup with a small piece of tough beef, coarse turnips and no potatoes.

Supper—Soup again, with two slices of bread.

---

## Red Clover as a Honey Plant

By Frank C. Pellett

THERE have been so many conflicting statements regarding the question as to whether or not the honeybee is able to secure honey from red clover *(Trifolium pratense)*, that it has seemed worth while to investigate the subject with some care. There have been so many reports of honey from this source, that it is desirable to learn whether the honey did come from red clover, or whether the beekeepers have been mistaken, and some explanation of the confusion is necessary. There is no question but that the plant secretes nectar in abundance, but since the corolla tubes are much longer than the tongues of the bees, they are unable to reach it under ordinary conditions. It is a well-known fact that plants behave very differently under different climatic conditions, so an effort has been made to secure evidence from as many localities as possible, and from a great variety of conditions.

In Iowa the writer has sometimes found bees working freely on red clover in extremely dry seasons. At such times, the bees were apparently getting some nectar, although it could not be detected in the hive. However, one year Mr. C. H. True, of Edgewood, Iowa, had on exhibition at the State Fair a generous quantity of honey which he thought was secured from red clover. It was slightly tinted with red, and had a flavor different from white or alsike clover honey. The explanation often given is that in dry seasons the florets are somewhat dwarfed, and because of the shorter tube the bee is able to reach the honey. Dr. L. H. Pammel, botanist at the Iowa College of Agriculture, has made a special study of bees and red clover under Iowa conditions. After having many measurements made, he has reached the conclusion that the effect on the length of the corolla tube, as a result of drought, is so slight that the bee would not be able to reach the nectar from this cause. He goes on record as follows:

"I have for several years closely observed honeybees and red clover, and from these observations I am still inclined to the opinion, earlier expressed, that honeybees do not get nectar from the flowers of the red clover, notwithstanding the opinion of many beekeepers in Iowa." (Third report Iowa State Bee Inspector.)

At the 1917 convention of the Illinois Beekeepers, Mr. Frank Bishop, of Virden, reported that one season he secured an average of 100 pounds per colony from 150 colonies, from red clover. According to his statement, there was no other bloom within reach at that time. He further stated that he visited the red clover fields, investigated the matter carefully, and was fully satisfied that red clover was the source of the honey.

So many reports from well-known beekeepers are to be found in our literature, that it seems worth while to quote several of them, together with the place where the reference is to be found. Mr. Wm. McEvoy, of Woodburn, Ontario, wrote to Gleanings in Bee Culture, page 486, 1907, as follows:

"In September, 1905, I extracted over 3,000 pounds of pure red clover honey, after giving the bees plenty to winter on. This honey was a light amber color, and good in flavor, and sold for the same price as honey gathered from white clover. My bees, being Italians, worked well on the second crop of red clover, which was not injured by the midge in my locality, in 1905, on account of the first crop being cut early."

Adrian Getaz, of Knoxville, Tenn., makes the following contribution to the subject in Gleanings, page 660, 1909.:

Red Clover Blossoms.

"In regard to bees gathering nectar from red clover, several opinions have been advanced. Generally it is supposed that owing to drier weather, the second crop has blossoms with shorter corollas, and that the bees can reach the nectar on that account. Another theory is that the nectar is more abundant, and fills up the corollas better, and thus comes within reach of the bees. A German apiarist a few years ago undertook to settle the matter, and spent a part of the summer lying down in the clover fields to see how it was. He reported that very few insects take the nectar through the corollas; but some kinds cut a hole near the bottom and help themselves through it. The hole once made, a number of insects, including bees, take advantage of it; and if the bees do not work on the first crop, it is because there are few hole-boring insects present."

Here follows a brief report with nothing to indicate whether the bees were seeking nectar or pollen:

"Last year was very dry and there was scarcely any white clover in blossom here; but the bees went fairly wild on the red clover, and it was the first crop, too." (J. F. Brady, Deerfield, Minn. Gleanings, page 149, 1911.)

That the subject is not new will be found by examining the files of the bee magazines of many years ago. Apparently it has been a controverted subject since beekeeping has been followed seriously in America. In the first volume of the American Bee Journal, page 228, 1861, we find the following:

"I noticed, in August and the beginning of September, while the bees were gathering honey from buckwheat, that they obtained pollen of a brownish color from some source. On investigating the matter I found that they collected it from red clover. This somewhat surprised me, as I had never seen them gathering honey from the red clover to such an extent, particularly while other forage was plenty. * * * I have also noticed that the bees visited only those heads that were imperfect, the tubes being shorter in consequence."

The principal interest attached to the above is the statement that the bees visited only the imperfect blossoms. On page 9 of the same volume is a statement somewhat similar, reported in one of the German journals, of Italian bees getting honey from red clover, in 1858. It is said that the season was very dry and the blossoms somewhat smaller as a result.

In 1899, page 15, American Bee Journal, we find another report of bees working on it in dry weather:

"My bees work more or less on it almost every year during hot and dry weather; but it does not produce as fine honey as white clover; when candied it is coarser grained, and has a water-soaked appearance. I wish that my bees would let it alone, for we have plenty of white clover when the red is in bloom" (Fred Bechle, Poweshiek County, Iowa.)

Again, on page 27 of the same issue, Theo. Rehorst, of Fond du Lac County, Wisconsin, reports:

"The mammoth red clover produces good honey and all our honeybees can reach the nectar, although the corolla is far longer and deeper than the common red clover. I never saw any honey from common red clover; only thin, red stuff, thin as water."

In 1903, E. E. Hasty, of Ohio, wrote, in the American Bee Journal, that while he admitted that bees worked freely on red clover at times, he was extremely doubtful about their ability to get much honey from it. The same doubt has been expressed by numerous observers from time to time, the usual explanation being that the bees are gathering pollen, rather than nectar.

On page 491 of the 1903 volume of the American Bee Journal is reported an interesting case of honeydew from red clover. Since it is the only case of the kind found in all the literature consulted it is quoted quite fully:

"For about ten days my bees have been bringing in honey from the second crop of red clover. Now this is nothing remarkable, for I have seen them doing so for more than twenty years past; but recently, passing through a field of red clover in bloom, I stopped to watch them, and, to my surprise, found them working, not on the blossoms, **but on the leaves.** This, I confess, I had never seen before. On closer examination I found the clover leaves covered with small plant lice, and the under leaves covered with honeydew, very similar to that frequently found on the leaves of the hickory, oak and other trees, though the honey is not so dark-colored as from leaves of trees."

On page 839 of the American Bee Journal for 1906 is found a rather convincing discussion of the subject of honey from red clover. It was at a convention of the National Association, and several men of wide reputation took part in the discussion, and testified to the fact that they had secured surplus from red clover. Hutchinson stated that he had secured 500 pounds from red clover at a time when there was nothing else in bloom, and that it was a light amber or dark white color. Messrs. Townsend, Stone, Davenport and others agreed that they had secured red clover honey, Townsend reporting as much as 2,000 pounds stored in two weeks' time.

The subject is discussed at length in Bulletin No. 46 of the New Zealand Department of Agriculture, by Isaac Hopkins, whose experience in this connection is interesting. We quote him in part:

"In my early days of beekeeping it was a moot point whether Italian bees worked on red clover or not. At this time I had a unique opportunity of testing the matter thoroughly, an opportunity which would rarely occur; therefore, I feel myself on safe ground when dealing with Italian bees and red clover.

"For five years (1882-87), I was located on the late J. C. Firth's estate at Matamata, where I started large bee farms. My bees, which were chiefly Italians, were near to thousands of acres of red clover. * * * Now and again we saw a few here and there gathering pollen from the blossoms, and sometimes a good deal of pollen from red clover was brought in when, no doubt, it was scarce elsewhere.

"In order to make a thorough test, I shifted, on one occasion, a number of strong two-story colonies to the center of a 700-acre paddock of red clover. The first crop had been cut for hay, and the second crop flowers were just opening. There was no ordinary bee forage anywhere near. After the fourth day, I examined the hives and found from the odor that came from them on removing the covers that some nectar had been gathered from the surrounding clover. I also observed that some clover pollen had been stored.

"There were two seasons out of the five when my bees worked more freely on the red clover than in others. In those seasons it was noticeable that myriads of small slate colored moths flitted about the clover, while they were rarely seen at other times. I was much interested, and in casting about for the reason, I became satisfied after very many tests that the red clover was secreting at times much more nectar than usual, and it may have been that it reached a higher level in the tubes on these occasions, and so came within reach of the tongues of the bees. Be that as it may, some red clover nectar was gathered from second crop flowers in these seasons."

While the different observers are by no means agreed as to the reason why the bees are able to get nectar from red clover on occasion, the testimony is very closely agreed upon the fact that it is only from the second crop, and in hot and dry seasons, that the bees are able to store honey from this source. So many widely-known men come forward with the positive statement that they have been able to secure surplus honey from red clover, that we can hardly question the fact that honey is sometimes stored from this plant. Whether the corollas are punctured by other insects, the tubes are shortened by drought or the nectar rises higher in the tube, remains to be proven.

---

# How I Won My Bee Honors

By D. M. MacDonald

MY apicultural training began in my boyhood, over 50 years ago, in the dear home garden, with its multitude of perennial flowers, its abundant fruit bushes and its miniature orchard of apple, plum and other nectar-bearing trees. The small valley was an ideal honey-producing one. In the summer every meadow field was like a garden bed, the white clover covering it as with a mantle of white, and in autumn the sloping hills on either side, for leagues and leagues, were one mass of purple heather, smelling on the glorious days of August and September sweet as an honeycomb.

Over forty years ago, in my own apiary, working among the bees was an unmeasured delight, and when the bee fever caught on, the pursuit became a fascination, and the study of the indefatigable workers became a charm. That the hobby proved a paying one increased the zest and added to the interest. My day's work only occupied from 10 a. m. till 4 p. m., with Saturday an off day, and Sunday, of course, a day of rest. So there was ample time for prosecuting the pursuit.

Fortunately, too, I was early introduced to bee literature of the best, those ancient tomes which breathe the true spirit of the Bee Master. For pure, unmitigated enjoyment, commend me to an old, old beebook. Its perusal opens up a new and untainted pleasure. As a counter poise I was made familiar with the masterpieces of the New World—with Langstroth's inimitable treatise, with Quinby's "Mysteries," with Root's admirable compendium, with Gleanings, and the Old Reliable. My own library was being steadily added to, and every beebook known was open to me.

About thirty years ago I made attempts to add to bee literature, and finding every article submitted accepted, I broadened out, sending contributions to America. There was in all this a fair foundation for presuming to aspire to adding the title of "Bee Expert" to my name. Urged by some members of the Council of the British Beekeepers' Association, who desired me to act as an examiner for the Third Class north of the Tweed, I resolved to make the plunge, in August, 1909.

Almost under the shades of Carlisle Ha, in the sweet valley of the River Eden, and looking out in the distance on the Cumbrian Mountains, clothed at the time in a rich dress of purple heather, I underwent a rigorous examination in all the branches of practical beekeeping. The examiner was thoroughly conscientious and occupied the full time specified. The dusk of evening being well advanced made the queens hard to find, and the day being rather unfavorable, handling bees and frames was a trying ordeal. However, in due course, there came down from headquarters the intelligence that I could write myself down a "Third Class Expert."

The Association has wisely decreed that no man shall proceed further unless he proves that he can handle bees and show that he has a good general knowledge of the whole art and practice of beekeeping on modern lines.

My ambitions, however, aspired higher, so, after a holiday in the South of England, visiting some of the leading apiaries there, I had a hard grind preparatory to sittings for the higher pass. This examination was all in writing, held near home, with a Major approved by the Council of the British Beekeepers' Association, to supervise the proceedings. The time allotted was five hours, the first half being taken up with the practical side of the subject and the other half with the scientific, five questions being given in each section, and every minute of it was taken up with busy writing. The test was a fairly severe one, as each question not only required several pages of foolscap to answer, but several of them had to be supplemented by drawings and sketches illustrating the subject treated, such as various organs of the bee.

At the close, the Superintendent sealed up the papers and posted them directly to the Secretary of the British Beekeepers' Association. The examiner receives only the numbers assigned to each candidate, no names being sent to him. In due course notice came down that a pass had been secured and later a "Second Class Certificate."

The first pass was merely a preliminary skirmish, in fact it is now described as the "Preliminary" examination. The second was to test the examinee's mettle. The crux of the matter had yet to come. Towards the end of May in the following year the final examination was held. It somewhat resembled the former one, but candidates have to show evidence of a superior education. It covers a wider field, too, and embraces a knowledge of the bee literature of the Continent and America. The questions on the anatomy and physiology of the honeybee, in my case, were distinctively stiff and searching. No superficial knowledge would suffice to obtain a decent pass.

It may be well here to give a brief summary of the field covered in the three examinations. The lowest consists of two parts. The first is taken up with a series of manipulations of hives, piecing together sections, frames, inserting the foundation in these, handling bees, spotting queens and handling frames. Few candidates fail in this branch. The second which consists in oral questions, may be made a severe test, covering, as it does, the whole field of elementary knowledge of bees and beekeeping.

To pass the second, candidates must show evidence of a fair education, and the knowledge demanded includes the following: 1. The natural history of the honeybee, with its anatomy and physiology. 2. Products of bees. 3. All about swarming. 4. The apiary as a whole. 5. Handling frames and manipulating stocks. 6. Wintering bees. 7. Difficulties of beekeeping, including diseases. 8. The work of each month of the year. 9. Honey and wax extractors. 10. Smokers and other appliances for subduing bees. 11. Comb foundation, fitting in, etc. 12. Our bee flora. The most common nectar-bearing flowers and trees.

For the final pass evidence of a good education has to be certified, and at least three years' practical experience of beekeeping is requisite. Candidates will be subjected to somewhat severe tests in any or all of the subjects given above and they will be required to show a satisfactory acquaintance with the best literature on bees and beekeeping.

Even then the ordeal is not over for them. If they pass the paper test they must deliver a short lecture on some beekeeping topic before the Board of Examiners in London. The subject is given out to the candidate only five minutes before he is called on, and that time is given him for thinking over the topic selected. At the option of the Board, he may be subjected to a further oral examination as well as to practical tests of his abilities. In my own case I had to deal with "The Pitfalls That Beset the Footsteps of a Novice, and the Advice You Would Give in Order to Save Disaster." The title is somewhat paraphrased, as the Council may consider they have an "all rights reserved" claim on the original for future use. In course of time the "Final Certificate" reached me and I became a full-fledged "Expert."

These certificates are highly valued, and many of their possessors, by their holding the Final, have been able to secure good situations as lecturers, experts and instructors in beekeeping to many of our County Councils and to some of our agricultural colleges. Amongst these certified experts are several ladies. They make excellent candidates at all the three stages, and in the final of those who secure 90 per cent and upward, generally half are of the fair sex.

My position as examiner of the paper work of the intermediate and final, enables me to conclude that excellent results follow the close study of the whole field of beekeeping necessitated by the preparation for a pass in these stages. It is almost impossible but that these young men and women must turn out better apiarists as a consequence of the efforts made.

The recently re-constituted Scottish Beekeepers' Association, through their Council, are making an earnest endeavor to organize somewhat similar examinations, with power to grant certificates—but on a rather wider basis. The Irish Beekeepers have been issuing expert certificates for a good many years.

Banffs, Scotland.

# LEGAL SERVICE DEPARTMENT

### Bees in the City

Would the action of the council mentioned in the following clipping be legal, and would it stand?

Pennsylvania.

"By unanimous vote the Council passed on first and second reading an ordinance forbidding the keeping of bees anywhere in Franklin within 500 feet of a dwelling house. It was conceded that there are very few places left where bees may lawfully be kept in Franklin when this ordinance passes. A fine of $25 is imposed, with jail for 30 days if fine and costs are not paid. Mayor Emery stated that only two or three citizens will be deprived of their bees by the ordinance. He said the keeping of bees is a menace to the neighborhood, and instanced a case where he said children dare not play in their yard because of the bees kept by a neighbor. 'A bee is a useful article,' said the Mayor, 'but the city is not the proper place for it.'"

Answer—This is only another example of arbitrary action on the part of a town council. It would be no more unreasonable for them to pass an ordinance prohibiting the keeping of dogs within the city limits because somebody had been bitten, or horses because someone had been kicked. There is little chance that such an ordinance would stand the test in court. However, the beekeeper with only a few colonies kept for pleasure would find it too expensive to fight such a case. This is one more good example of the imperative need of an organization to look after such matters for beekeepers everywhere. With 5,000 members, a membership fee of a dollar each would pay for fighting such farcical ordinances, as well as providing other needed legal service for the beekeepers.

# BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Honey and Good Health

I notice very frequent objections to use of cane sugar. What can you say of the use of honey as a substitute?

A. Cane sugar requires digestion. When taken in concentrated form and in considerable quantity, it is irritating to the stomach in highly objectionable and various ways. Honey has the advantage that it requires no digestion, but is ready for immediate absorption. Honey contains various flavoring matters derived from flowers, some of which are harmful to some people. In fact, most people are able to take honey only in moderate quantities. A large amount produces discomforts, often headache. Some people are made ill by eating honey. Such persons are usually individuals who have been sensitized to the pollen of the plant from which the honey is gathered. The bee in the process of gathering honey collects considerable quantities of pollen and other foreign bodies. It is said that bees introduce into the honey minute quantities of a substance from a poison bag for the purpose of preserving the honey, which is accomplished by the formic acid which it contains. This is highly irritating, and in certain hypersensitive persons seems to produce unpleasant effects.

The foregoing is taken from that excellent monthly, Good Health. One is somewhat at a loss to know what will be the effect of its teaching upon the consumption of honey. The government is making urgent appeals to beekeepers to produce the largest amount of honey possible, advising the production of extracted honey rather than comb honey, because a colony of bees will produce a larger amount of honey in the extracted form; we are to Hooverize on sugar so that our allies may not suffer for want of it, and it is not strange that a seeker after good health should turn to that most popular and reliable dispenser of information regarding matters of diet, and inquire what is to be said of the use of honey as a substitute for sugar.

In the reply certain things are said

The beekeeper of the South is modernizing his methods fast.

about the effects of honey and of sugar and each one is left to judge for himself whether it is advisable or not to eat less sugar and more honey. And it is not very hard to suppose that some might think somewhat after the following fashion: "Honey has flavoring matter, harmful to some people; most people are able to take honey only in moderate quantities; some people are made ill by eating honey; a large amount produces discomforts, often headache; and there's some sort of trouble about a poison bag. Doesn't look like a very safe thing to eat honey. Sugar seems to be a bad thing, too, but only when taken in concentrated form and in considerable quantity. So the only danger with sugar seems to be in having it in concentrated form. Well, I don't need to take it in concentrated form; it's easy to dilute it so as to make it perfectly safe; but there are several things wrong with honey that I don't know how to remedy; so it's sugar for me." Now, it is not at all likely that Good Health thinks the average person is in any more danger from eating honey than from eating sugar. What a pity it didn't say so. In fact it has said in previous issues in effect that honey is the safer of the two, and why not now? To be sure, there's that one sentence, "Honey has the advantage that it requires no digestion but is ready for immediate absorption," but that sentence contains so few words in its favor as compared with the many against it, and the number of words is likely to have undue weight with the not too careful reader. As a matter of fact, however, that matter of "immediate absorption" is a thing of so much importance that it overbalances by far any real objections that may be made against honey.

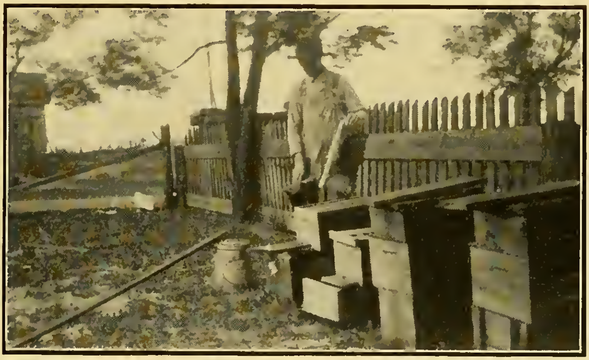
It would be interesting to be told what flavoring matters in honey are harmful to some people, and just how many people in a thousand have been thus harmed.

Most people are able to take honey only in small quantities, a large amount producing discomforts, often headache, we are told by Good Health. Will it tell us whether honey is any worse in this respect than sugar?

There is an intimation that there is something unwholesome in the pollen gathered by bees. It is true that many pounds of pollen are gathered, but nearly all of it is stored separately, and does Good Health really know of any harm coming from the minute quantity of pollen that is found floating in honey?

"It is said that bees introduce into the honey minute quantities of a substance from a poison bag." That seems to be a resurrection of a silly notion that had some currency a good many years ago, but was supposed to have found its final resting-place years ago; the whole of it being that the bee uses its sting as a trowel to manipulate its wax, and just before sealing up a cell of honey it drops a tiny drop of poison from its sting. Has Good Health any proof that anything, good or bad, ever passes from the poison bag or sting into the honey? And does it know that any real harm has come from the minute quantity of formic acid that honey contains?

It is not believed that so reliable a journal has any desire to give honey anything but a fair show, and it may not be unresasonable to ask it to tell beside the advantage of immediate absorption, whether honey contains vitamines and minerals not at all contained in sugar, and if so, what is the importance of them.



Transferring an apiary in the South—F. M. Baldwin.

# MISCELLANEOUS NEWS ITEMS

**Keep Bees Better—Keep More Bees**—A bulletin on bee culture has recently been put out by the Department of Agriculture at Washington, D. C., headed as above. It is an urgent appeal to beekeepers not only to run their own bees for the most honey, but to rent or lease unproductive bees and get the maximum amount from them.

The bulletin says:

"There are in the United States about 800,000 persons who own bees, but there are not enough who keep bees efficiently and with the greatest possible profit to themselves. The war has created a need for abundant production of all food supplies and honey is a non-perishable, concentrated food. Efficiency in honey production comes only from study of the best practices perfected and recorded by others. The study of the bees themselves must not be neglected, for all beekeeping practice depends on a knowledge of bee activities. California beekeepers will do well to study the literature on eastern methods. Local differences are often unduly magnified.

"This circular is compiled to make easily available certain material which cannot well be presented in bulletin form. If your beekeeping questions are not answered here or in the Bureau bulletins, please indicate your needs. Every beekeeper should join the nearest beekeepers' association, should subscribe for a least one bee-journal, should own and study at least one book on beekeeping and should know what aid in beekeeping is obtainable from State offices or from the Agricultural College."

**A California Bulletin**—"Beekeeping for the Fruit Grower and Small Rancher, or Amateur," is the title of a 12-page bulletin written by Geo. A. Coleman and gotten out under the direction of the College of Agriculture at Berkeley, Calif. It is, as its name indicates, a bulletin of information to the small beginner. Subjects dealt with are ,Kind of Bees to Keep, Where to Obtain Them, Equipment Necessary; How to Handle Bees, What You will Find in the Hive and What to Do, Cleaning Hives and Frames, Preparing for the Honey-flow, Beekeepers' Library, etc.

**Missouri Apiary Superintendent.**—Our good friend, R. A. Holekamp, of R. F. D. 1, Hillsboro, Mo., has been appointed superintendent of the Apiary Department at the Missouri State Fair, which is to be held at Sedalia, August 10 to 17. Friend Holekamp believes in getting things properly advertised, and he is sending a circular letter to beekeepers soliciting their co-operation for the apiary exhibit. Write to him for information.

**Isle of Wight Disease.**—We are in receipt of Bulletin No. 85 of the West of Scotland Agricultural College, by Joseph Tinsley, B. B. K. A. Mr. Tinsley makes a preliminary report on his experiments concerning this disease. He evidences the fact that the remedies recommended during the past years, izal, bacterol, dioxygen, phenol, formalin, sulphur and other drugs, have given negative results. But he makes a rather encouraging suggestion concerning a culture recommended by the famous Professor Metchnikoff, Bacillus Bulgaricus, which would appear to have cured at least one case on which experiments were made.

With so many learned experimenters at work on Isle of Wight disease, we may hope to have, some day, a cure which will also cure the similar disease, the so-called paralysis.

**The Ames Meeting.**—The second annual Short Course in Beekeeping at the Iowa Experimental Station at Ames, Iowa, was a decided success, as it was well attended by beekeepers and students.

Some of the notable addresses were by C. P. Dadant, of the American Bee Journal, Hamilton, Ill.; Mr. D. A. Davis, of Washington, D. C.; Professor F. Eric Millen, Mr. W. S. Pangburn, of Center Junction, Iowa; Professor Pammel, and others of the faculty, and Mr. Edward Brown, of Sioux City. Mr. Fred Hall's address regarding swarm prevention was a striking one, and attracted much attention. Dr. Bonney, of Buck Grove, showed models of some of his new ideas, a feeder, hive entrance, combined decoy hive and swarm catcher, electric comb patcher and others.

While at Ames the writer was shown the last word in aluminum honeycombs, the invention of an Iowa man, and there seems to remain not a particle of doubt but that it is a decided success. The samples I saw were pieces inserted in regular combs, and the bees had not only accepted and used them, but where they were shallow had built them up as though working on wax combs. As such combs would be moth-proof, as well as mouse-proof, they could be stored anywhere without fear of loss. When aluminum is again available at a moderate price they can be made to sell at about 25 cents, I am informed by the inventor.

A. F. BONNEY.

**Bibliography—The Flower and the Bee**

"The Flower and the Bee—Plant Life and Pollination" is the title of a magnificent work, by our well-known correspondent John H. Lovell, whose articles on honey plants and on pollen-gathering insects have been much appreciated, not only in the American Bee Journal, but in other special publications.

The book presents the function of bees, beetles, flies and other insects in the pollination of flowers. It contains 119 illustrations of flowers and insects in the skilled manner for which the author is well known. It is a monumental work and deserves a place on the book-shelf of every student of entomology or botany.

**The New York State Beekeepers' Association** will hold a Field meet at Hayt Corners, N. Y., August 2, at the summer home of C. B. Howard. Dr. E. F. Phillips will probably attend.

**Loss of Bees by Flood.**—Mr. J. W. Tinsley, of Ames, Iowa, lost an entire apiary by a cloudburst. Nine and a half inches of water fell at that spot that evening.

**Palmetto Honey.**—Good honey can be produced right by the side of Lake Okeechobee, in southern Florida. We have just received a fine sample of scrub palmetto honey from C. C. Cook, Tasmania. This town is to be found only on the latest maps. It is a new place, west of that big lake, in the wildest of Florida.

**Idaho Meeting.**—The Annual Field Meeting of the Idaho-Oregon Honey Producers' Association will be held on the premises of Gottfried Lohrli, Parma Idaho, Wednesday, July 10. All honey producers of southwestern Idaho are cordially invited to attend.

P. S. FARRELL, Sec'y.

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

Honey arrivals since May 15:

**Medina, Ohio**—220 pounds Kentucky, 4.005 pounds Nebraska, 7,638 pounds Florida, 757 pounds Pennsylvania, 1.080 pounds Colorado.

Shipping point information Friday, May 31:

**San Francisco, Calif.** — Demand light, fair for export, movement slow, growers holding for higher prices. Prices to growers: Orange blossom, 18-22c, mostly 20c; sage, 20-22c; light amber, 16 2-3 to 20c. Unofficial estimate orange blossom crop, 1918, 300 to 400 tons; expect lighter crop of sage than last year, on account of cold weather and rains.

**Los Angeles, Calif.**—Demand and movement good, market strong. Cash to producer on farm: White orange, strained, per pound, 20-21c, mostly 20c.

**Kansas City**—Receipts very light. Supplies insufficient to meet demand. Demand limited, market strong, few sales, all sales in small lots. Missouri, first native honey on market, quality and condition good; 24-section flat cases, No. 1 light, $7.50. Beeswax: approximately 500 pounds ar-

Group present at the Short Course at Ames, Iowa.

rived. Buyers paying 40c per pound.

**Minneapolis**—Receipts very light. Suplies very light. Demand and movement good, market firm. All sales in small lots. Comb honey: Minnesota, Wisconsin and Iowa, white, 24-section cases, $6.50; special brands, $7.00-7.20. Extracted: Minnesota white, fancy, 60-lb. pails, 21-22c per pound. Beeswax: no sales reported.

**St. Paul**—Receipts light. Supplies light. Demand good, market firm, all sales in small lots. Comb honey: Minnesota and Iowa white, fancy, 24-section cases, $6.50. Extracted: Minnesota, supplies exhausted. Beeswax: no sales reported.

**Denver** — No fresh arrivals. No comb honey on market; extracted honey supplies practically exhausted. Demand good, movement slow, market very strong. Sales direct to retailers: white to amber, 19-20c per pound. Beeswax: receipts very light. Supplies very light. Demand good, movement slow. Price to producers, 37½-40c per pound.

**Chicago**—Supplies negligible. No sales reported.

**Philadelphia**—6 kegs and 1 barrel Florida arrived. Supplies extremely light. Demand far exceeds supply, market strong. Extracted: domestic and southern in barrels, 24c per pound. Comb honey, no supplies, no sales.

**Cincinnati**—3 Cuba, 150 lbs. Tennessee, 4,293 lbs. Alabama, 945 lbs. Kentucky, 2,724 lbs. Florida arrived; imports via New York City, 695 lbs. extracted. Comb honey, no arrivals reported. Extracted: supplies very light, demand good, market firm, few sales, account of high prices; Cuban, last sales about 10 days ago; dark amber, 22c per pound. No later sales reported.

**St. Louis**—Practically no supplies; no sales.

**New York**—Arrivals, 265 barrels Porto Rivo, 8 cases Mexico, incomplete. Receipts light. Movement slow, demand moderate. Since April 15 no reports arrived from Cuba, Santo Domingo or Haiti, only arrivals now from Porto Rico, Texas, Florida and Mexico. Extracted honey: Porto Rican, also some Cuban that arrived previous to above mentioned ruling, $2.07-2.52 per gallon; Florida, few sales; light amber, $2.60-2.65; white, $2.80-2.90 per gallon. Beeswax: arrivals, 160 bags West Indies, 10 cases India, 30 bags Haiti, 164 bags Cuba, 80 bags Porto Rico, 46 bags and 15 cases South America, 38 packages Portugal. Market steady, demand and movement good. Yellow, 41-43c; dark, 38-41c per pound.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

## Swarm Prevention

I was reading the experience of one Fred W. Hall, of Iowa, on non-swarming. He says on or about the first of June he de-queens all of his colonies except where he wants an increase, then he takes the queen from the most populous colony and places her in a new hive, together with two or three frames of honey, and sets the new hive on the old stand, then in nine days he goes over all colonies and destroys all queen-cells except one good one. Then by the time they get straightened around it is too late to swarm. What do you think of the idea, and what effect, if any, would it have on the honey crop? INDIANA.

ANSWER.—Mr. Hall is a good beekeeper, and with him the plan results in good crops. In the hands of a careless man, there is danger that more than one queen-cell would be left, making swarming practically certain.

## Comb Honey

1. When running for comb honey, what is the best plan to use to hive on, full sheets of foundation or old combs?

2. Is honey ripe as soon as sealed?

3. How many supers do you use on each hive for comb honey? If you take it off as soon as the most of it is sealed, as you say in your book of "A Thousand Answers to Beekeeping Questions" two supers would be enough. The most beekeepers say tier up as long as the honey is coming in, and that is the way I have always done, but my honey is not as nice and white as I would like to have it. I have had as many as seven comb-honey supers on at one time.

4. I use the 8-frame hive. Which do you think is the best for comb honey, 8 or 10-frame? INDIANA.

ANSWERS.—1. Old combs, if you have them; if you haven't, then full sheets, but never starters unless you want to raise drones.

2. Yes, with occasional exceptions.

3. In a big flow two would be very unsatisfactory. Five would generally be all right, and occasionally a colony would need 7 or 8.

4. As a rule the larger hive is probably better.

## Pound Packages—Hives—Extracted Honey

1. Will the bees from the south that are sold in pound and larger packages go through the winter all right here?

2. What hive would you advise me to buy, the Dadant hive or the Lewis hive?

3. What is the Dadant method for producing extracted honey? ILLINOIS.

ANSWERS.—1. Yes.

2. I don't know enough to answer.

3. Oh, my! It would take a book to answer that. Fortunately, there is such a book as Dadant's Langstroth. Yet in the main I suppose the methods of the Dadants are not very different from those of other good beekeepers.

## Wintering

1. Will you be so kind as to criticize from your standpoint bee-entrance for winter as afforded by blocks which fill up a space 14½ by ⅞ in.? The openings at each end are 2¼ by 7-16 in., making a total opening of 2 square inches.

2. What is or would be, your ideal of an opening to hive during winter, when the total space available is 14½ by ⅞ inches?

3. About March 20 there was unusually mild weather, after a winter during which I think the bees did not fly out at all. I took advantage of it to examine every one of my 62 colonies. Conditions then were about exactly the same as appeared May 7 last year, as to stores. I equalized stores, fixed up things generally, expecting to feed candy soon. What was unusual with me was the frequent occurrence of pretty well soaked chaff above the brood-chamber. There was one colony that exteriorly showed no sign of life, so I let it go almost to the last. Upon removal of chaff tray I saw the bees quite lively, stores almost gone. By giving them frames of honey I saved them. When the bottom-board became revealed there came in sight a thick layer of dead bees, enough to block up the entrances (7-16 inch), so, of course, they could not get out. There was some wetness about the frames. What was the cause of all this? Next to this colony was another in exactly the same kind of hive, and all was O. K.

4. What is your way of fixing up preparatory to outside wintering? Please state exactly what to place over brood-chamber, style of board over same, etc. PENNSYLVANIA.

ANSWERS.—1. I'm not sure there's anything to criticise, unless it be that with so shallow an entrance close down on the floor there might be danger of clogging with dead bees.

2. I don't know what is best. Good results should be obtained with a strong colony having an entrance 2½x⅞, or an entrance at each end made by turning your entrance-block upside down.

3. I don't know why this should have been so. It's an old saying that bees never do anything invariably, and it often happens that under what appear to be exactly the same conditions there are quite different results, which no one can account for. With fuller knowledge of all particulars I might be able to tell why, but most likely not.

4. I have had no experience for many years in outdoor wintering, and so can only refer to the experience of others as found in the books and bee journals.

## Drumming

Here is a little experience I had drumming bees to prevent swarming.

The swarm came off and clustered in the usual way. I shook them in a swarming box and left it in the grass until about 5 o'clock p. m., then put them back in the same hive they come out of. The next day about 10 a. m., I took one super off and put three empty supers on next to the brood-chamber, put the partly filled one on top and stopped the entrance of the hive, drumming the bees up in the supers to give them to understand they had lots of room. I let them out, and in less than two hours they were working and made no further attempt to swarm. They made 92 full combs and seven partly filled combs of honey.

Was it the drumming that did the good? NEW YORK.

ANSWER.—It is hard to say positively, but it seems certain your treatment was instrumental in preventing further swarming. But one cannot be sure just how or why. It is possible that the bees had been delayed in swarming, perhaps by bad weather, and at the time the swarm issued one or more virgins were ready to emerge, which they did as soon as the old queen went out with the swarm, and then while the old queen was out all that had not emerged were massacred in their cradles, so that no cells were left for further swarming. There are other possibilities in the case, but I doubt that you would find it a reliable line of treatment in general. At least I would expect more failures than successes.

## Sting

Having never read or heard of anyone being stung by a queen bee, I would like to know the effects of same; is it worse than the sting of a common bee? ILLINOIS.

ANSWER.—I don't know what the effect of a queen's sting would be, but would not expect it to be different from that of a worker. I've been handling queens for more than half a century, and I've never been stung by one, and should not expect one to sting me if I should handle them a century longer.

### May Swarm Returning to Hive

1. One of my swarms swarmed on the first day of May. I hived them on the old stand in a new hive with full drawn combs. They seemed all right and they made some honey. But finally they came out and went back into the old hive. What was the cause? Did they supersede their queen? I saw a few eggs in the new hive, some cells had two eggs. They swarmed last year, so the queen could not be very old.

2. Last winter one of my swarms died. In the spring, when I opened up the hive, I found about 50 pounds of honey. What was the cause. The honey was good.
IOWA.

Answers.—1. I don't know. You are above latitude 41 degrees and it would hardly seem that a normal swarm should come out the first day of May. The plurality of eggs in a cell after the swarm was hived looks as if the bees had no proper queen, but laying workers. These two points taken together look as if it might have been some sort of a freak swarm, which found itself no better off in the new hive and then returned. But this guess may be wrong.

2. It is possible that the colony petered out because it had a poor queen, or none.

### Sealed Honey for a Swarm

Should a new swarm be put in a hive that has sealed honey in it—about 10 pounds?.
IOWA.

Answer.—There will be no harm in using such a hive for a swarm, provided there has been nothing like foulbrood in it, and in some cases the honey may be a help.

### Making Frames to Exclude Queen

Up to the present time I haven't used a queen-excluder, as I run for bulk comb honey. But my bees increase so fast and get so crowded that the queen is forced up into the supers and nearly all the brood is drone. Couldn't the top bars of the brood-frames be made or spaced so as to exclude the queen, which would do away with the patented excluders, thus saving the beekeeper at least 30 cents on each hive?
GEORGIA.

Answer.—The apertures in a queen-excluder must be very exact. If just a little too small neither queen nor worker can pass, and it takes an exceedingly small increase in size to allow a queen to pass. It would need very fine workmanship to have the spaces between top-bars thus exact. Even supposing you had them made thus perfect, the bees would crowd in bee-glue, and in only a short time you would find some of the spaces large enough to allow the passage of a queen. I don't believe the thing is worth trying.

### Bees Deserting Hive

I had a swarm desert the hive this spring, leaving several patches of brood in combs, but no honey. I had noticed it was weak and looked for the queen a few days before they absconded, but could find none. They seemed all right, but weak. Why did they leave?
MISSOURI.

Answer. It was likely what is called a hunger swarm; that is, the bees deserted the hive because they ran out of stores.

### Care of Hives—Clover—Kind of Hives

1. I have six 10-frame hives and four 8 frame hives, all painted. I want to know how to take care of my hives. Had I better set each one on a brick? Had I better arrange 2x1x16 scantling to set the hives on, and how far apart should they be? How high?

2 Is wild clover or white clover a good pasture for bees??

3. When and how should I sow it?

4. Would one and a half acres be much help to my little apiary?

5. What advantage has the hive on page 153, American Bee Journal, over hives like the ones on page 121?

6. Which side of bottom-board would you use, shallow side or deep side
TEXAS.

Answers.—1. Putting hives on scantling 16 feet long would have the rather important advantage that it would be easy to level them. (They would be level from side to side, and the back end should be about an inch higher than the front end.) It has the disadvantage that jarring one hive would jar the whole lot. It has the further disadvantage that where the bottom-board rests on the scantling the water collects at each shower, tending to rot the bottom. On the whole, perhaps it is better to have the hive on bricks. Let the hives stand in pairs, the two hives of each pair as close as they can be without touching. The distance between each pair and the adjoining pair may be as little as 30 inches if you are badly crowded for room; but 4 feet is better if there is room. No need to have the hives very high; unless there be some special reason for it, four inches between the ground and the bottom-board will do.

2. Where white clover succeeds it makes splendid bee-pasture. But have an impression that it does not succeed well in all parts of Texas.

3. Sow it spring or fall, perhaps preferably with grain.

4. Yes, an acre and a half well set with white clover should yield quite a bit of nectar.

5. The hives on page 158 are supposed to allow freer examination of combs without danger of killing bees.

6. The deep side, allowing large entrance.

### Kind of Hive

1. Would you advise a young man working in an office who wishes to keep from 10 to 20 colonies of bees to use Jumbo hives, or Standard 10-frame hives? I cannot be on hand to take care of swarming and want to obviate or check swarming as much as possible. I intend to run for extracted honey.

2. I have read in your "Forty Years Among the Bees," page 190, your experience with Jumbo hives. Do you conclude that the Jumbo hive is of little value in curbing swarming?

3. How do the Dadant and Jumbo brood-chambers compare in capacity? Mr. Dadant claims that his hive is practically non-swarming.
MINNESOTA.

Answers.—I hardly know what to say. One objection to the Jumbo hive is that being unusual, in case you should want to sell out you might not find so ready a sale as for something more nearly standard. With either hive you may be practically safe from swarming by using the Demaree plan. When you find the bees have started cells, put all but one frame of brood in an upper story over an excluder, leaving the queen in the lower story with one frame of brood (preferably one not very well filled with brood) and the hive filled out with drawn combs or frames filled with foundation. Some think it better to have empty extracting combs in the second story and the story of brood over this. Kill all sealed cells at time of putting up the brood, and again 7 or 8 days later.

2. While it is a fact that the colony in the Jumbo hive was the first in the apiary to swarm, it is hardly likely that such would be the rule.

3. I don't think there is much difference in the capacity of the two. The freedom from swarming with the Dadant hive may be not only because of the large size of the hive, but also because the frames are spaced 1½ inches from center to center, instead of the usual 1⅜.

### Space Over the Bees in the Hive

How much space is allowable over the bees in the hive? I think of making boxes an inch deep and the size of a hive, into which I will put hard candy and invert said boxes over the bees, for additional feed. Would the inch over the space already there do harm or good? Will bees cluster above the frames if there is room for feed?
IOWA.

Answer.—It is generally understood that at a time when bees are busily at work building and storing, if more than a certain space, called bee-space, be allowed, the bees will build in it comb, and perhaps store honey therein; and if less than a bee-space be allowed, it will be filled with bee-glue. Exactly what bee-space is is none too well known, but it is somewhere in the neighborhood of one-fourth of an inch. So, in the busy season it is advisable to have neither more nor less than a bee-space above the frames or at their sides, although as large as three-fourths of an inch may be allowed under the bottom-bars.

But your proposal is to have an inch space over the top-bars to hold candy for food, and as you would hardly be feeding at a time of storing, the larger space could hardly do any harm other than to oblige the bees to keep warm the additional space, and this disadvantage may easily be overcome by the advantage of giving food when needed. The bees will readily go above to get the candy.

While it is a good plan to provide thus for the needs of the bees, there is a still better plan. It is to give the needy bees frames of sealed honey. You say you have no such frames. Well, then, feed the candy, but make your preparations so you will not need to do so again. Make it part of your plans this year to have two frames of sealed honey saved over winter for each colony you expect to have next spring. Good honey is better than sugar to feed babies, whether they be bee babies or household babies. If you don't need to feed the bees next spring to prevent starvation, you will need to fill up the vacancy in the brood-chamber, and thus allow the bees to begin just so much sooner to store in the supers.

### Wintering

I am thinking of wintering my bees in two 10-frame hives, as a permanent brood-chamber with all the stores they contain. What, in your opinion, do you consider the worst drawbacks to this way of management, and would there be any need of manipulating the supers or combs before swarming time?
MISSOURI.

Answer.—I'm not sure that I can tell exactly why, but there seems to be a limit to the amount of room that can be profitably used in the brood-chamber, and before deciding that you will run all the colonies in the way mentioned it would be well for you to try a minority of them in that way. It would hardly seem that any manipulation of supers would be needed before swarming time; yet you can't 'most always tell.

### Moving Bees—Distance From Apiary

1. The weather being unfavorable last spring, and not knowing just when to move my bees, I waited a little too long. They had come through the winter strong, had plenty of stores, and I finally moved them from winter quarters on the southeast of the house, to the orchards. I did this at evening (nightfall). All seemed well, but next morning a large swarm of bees hovered over the old spot and they became chilled and settled on the base of the weatherboards of the house. I then picked them up and got a berry box full, and shook them before the hive and they all entered, but when they had warmed up, it seemed, they returned to the old spot and hovered over it until a rain set in and killed them. Was this a swarm which had lost its queen, do you think?

2. I moved the hive after dark and all seemed O. K. If so, what could I have done to save the bees? Would they have returned to the hive if I had replaced it in the old position?

3. Notwithstanding that bad luck, the hive thrived and I got a super of extracting honey at the end of the season. The honey was very dark. We have much sweet clover, some white clover, wild flowers of all kinds, and thickets of buckbrush. Several persons, on eating the honey claimed it made them dizzy.

Could it be some plant which causes this, or does all honey bring this on when eaten in quantities, or is this just a coincidence?

4. I have black bees and find them none too gentle, and want to requeen. Would an apiary of about 30 hives, distant about one and a half miles, mix and make hybrids if something should happen and the bees raised a virgin? MISSOURI.

Answers.—1. I don't think there was any swarm in the case. It was merely the bees returning from their flight to the place they had marked as their proper locality.

2. Yes, if you had returned the hive to its old position the bees would have joined it all right; only there would be some trouble with any of the younger bees that had never flown before the change, and had marked the new location, for they would want to stick to the new location upon returning from the fields. If you had fastened the bees in the hive for a day or so, putting them on the new stand, and then in the middle of the day opening the entrance after pounding on the hive so as to frighten the bees, very likely you would have had no trouble. In such a case, however, if some of the bees should persist in going to the old location, put there a brood-comb for the bees to settle upon, and at night shake these bees in front of the hive on the new location, repeating this each day, you would find that in a few days they would give up their old location.

3. It is possible there was something in the character of the honey to cause dizziness, but it is hardly likely.

4. There would be a considerable chance that one of your virgins might meet a drone from an apiary a mile and a half away.

Bees of a drafted man. Walter Hagler, of Gibson, Miss., has just been called and had to dispose of this well-kept apiary

### Melted Combs—Using Old Combs

1. Last season I removed about 60 pounds of honey from a swarm that I had just purchased, and on melting up the combs was surprised that the wax did not set regularly, but was in a crumbled form, resembling cornmeal. The honey had a peculiar flavor and seemed a little sour or fermented. From two other hives in the same lot I noticed a peculiar odor, but could not find any indications of foulbrood similar to symptoms of disease as shown in government reports.

2. Is there any harm in using combs from old hives from which bees died this winter, where a few of the combs on places are moldy and filled with dead bees? NEW YORK.

Answers.—1. I don't remember that I ever had any experience with wax in this granular form, although I know it sometimes happens, and I doubt whether the honey or disease had anything to do in the case. If you please I'll step down off the rostrum and give the boss a chance to talk; he knows a whole lot more than I do about wax.

(Usually the granular form of wax is due to the melting wax being beaten by the steam or boiling water. In many cases granules at the bottom of cakes are caused by this trouble. We have seen wax so beaten that it looked like cornmeal and contained 50 per cent of water. Dry heat is the remedy.—Editor.)

2. It will be all right to use them if there has been no disease in them

### Requeening

Please give me advice through the American Bee Journal on the following: I have eight hives of mixed bees that are very cross, so I want to re-queen. I want to take a hive with full frames of foundation, put in an Italian queen and set one of the hives of the hybrid bees on top of this hive, putting a queen-excluder between the two hives. After the Italian queen gets to laying and young are coming out, lift up the top hive and put a board with bee-escape, so bees can come down from old hive but cannot go back to the hybrid queen. After all bees are out, then remove old hive and kill hybrid queen. What do you think are my chances of success? I have already arranged one hive. VIRGINIA.

Answer.—I think the chances are ten to one that your new queen will be killed.

### Foulbrood

1. I would like to know the different conditions existing between American and European foulbrood. I have eight or ten colonies that have some kind of a disease.

2. Is the McEvoy treatment safe for any kind of diseased brood?

3. Is it necessary to use queen-excluders under extracting supers. The supers are two half stories fastened together with full depth frames in them. The hives are eight-frame size. KANSAS.

Answers.—1. In American foulbrood if you thrust a toothpick into a diseased cell and draw it out the dead matter will string out in a thread an inch or more long. In European foulbrood the diseased larvæ nearly large enough to seal over will have a distinctly yellowish color. The thing for you to do is to send a sample of the diseased brood to Dr. E. F. Phillips, U. S. Dept. of Agriculture, Washington, D. C., and he will tell you what the trouble is, and also send you information as to treatment. If you write in advance he will send you a box in which you can send the sample to him, and also a frank to pay postage.

2. It is generally used only for American foulbrood.

3. Excluders are nearly always used, as otherwise you are likely to have brood in your extracting-combs.

Home yard of R. A. Shults, at Cosby Tenn.

# Classified Department

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

## BEES AND QUEENS

ITALIAN QUEENS—Northern-bred, three-banded, highest grade, select untested, guaranteed, queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, $1; twelve, $10; fifty, $35. Send for circular. J H. Haughey,
Berrien Springs, Mich.

FOR SALE Golden Italian queens that produce good honey gatherers; no foulbrood. Select tested, $1.25; tested, $1; untested, 75c; 6, $4.25; 12, $8 No bees for sale.
D. T. Gaster, Rt. 2, Randleman, N. C.

FOR SALE—Three-band Italian queens. Untested. $1.25; select untested, $1.50; tested, $2; select tested, $2.25; breeders, $5 each. All queens mailed promptly H. W. Fulmer,
Box A, Point Pleasant, Pa.

WANTED—To buy or exchange queen bees for Barnes foot power saw.
R. O. Cox, Greenville, Ala., Rt. 4.

**OUR BRIGHT ITALIAN QUEENS will be ready to ship after April 15. Untested, 75c each, $8 per doz., or $65 per 100. Safe arrival guaranteed.**
**Tillery Bros., Georgiana, Ala., Route 5.**

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

FOR SALE—Fine Italian queens, at 75c each; $8 per dozen. Safe arrival guaranteed.
T. J. Talley, Greenville, Ala, Rt. 3.

FOR SALE—Northern Bred Italian Queens; hardy, prolific goldens, each, $1; six, $5.
Allen R. Simmons, Claverack, N. Y.

FOR SALE—3-banded Italian queens, 55c; ten, $5. Circular free. O. C Wandrie,
Frazee, Minn.

FOR SALE—Three-banded Italian queens; untested, one, $1; six, $5; twelve, $9. Tested queens, $1.50 each. Rob't B. Spicer,
Wharton, N. J.

PURE 3-banded Italian queens, as good as you can buy with money; no disease, and every one guaranteed. Write for prices. No more nuclei or colonies for sale this season.
J. F. Diemer, Liberty, Mo.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50. Garden City Apiaries,
San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50. H. G. Dunn,
The Willows, San Jose, Calif.

BOTH Italians and hybrid bees at $2.50 per pound with untested queen; 2 pounds, with queen, at $4.
Mrs. T. H. Carruth, Big Bend, La.

SWARTS GOLDEN QUEENS produce golden bees of the highest qualities; satisfaction guaranteed. Mated $1, 6 for $5; tested $2.
D. L. Swarts, Lancaster, O., Rt. 2.

FINEST ITALIAN QUEENS, June 1 to November, $1 each; 6 for $5. My circular gives safe methods; free. J. W. Romberger,
3113 Locust St., St. Joseph, Mo.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln, Ill.

FOR SALE—Pure Italian queens; goldens that are golden, and Doolittle's choice stock. Select untested (laying queens), 1, $1; 6, $5. tested, $1.50; best breeders, $5. For large lots write for prices. Pure mating, safe arrival and satisfaction I guarantee. J. E. Wing,
155 Schiele Ave., San Jose, Calif.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed. O. D. Rivers,
Route 4, Honey Grove, Texas.

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease.
Wilmer Clarke, Earlville, Madison Co., N.Y.

**THE LAST TIME**
You Bought
**QUEENS**

did you get what you were looking for? Were they thrifty, hardy, gentle and beautiful? Were they the Imported Queens Americanized? Were they guaranteed to reach you in good condition, to be purely mated and to give perfect satisfaction? These are the qualities that have enabled

**Forehand's Three-Bands**
**THE THRIFTY KIND**

to stand over a quarter of a century of actual test. That has brought them up to a standard **surpassed by none, but superior to many.**

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 1.25 | 7.00 | 11.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Write for Circular.

**W. J. FOREHAND & SONS**
**Fort Deposit, Alabama**

*"Griggs Saves You Freight"*

**TOLEDO, O.**

Say, Mr. Bee Man, have you placed that order for supplies yet? If not, remember we not only save you freight, but time and money as well.

**DELAYS ARE DANGEROUS**

But don't delay, as Railway Embargoes are all the rage now, and you may be caught.

**LARGE NEW STOCK ON HAND**

All ready to ship out, direct from ROOT'S, who know how to make good goods.

**HONEY AND BEESWAX**

Always wanted; cash or in trade. Send for FREE CATALOG.

**S. J. GRIGGS & COMPANY**
**Department No. 24** **Toledo, Ohio**

*"Griggs Saves You Freight"*

**TYPEWRITER SENSATION**
**$3^{00}$ a Month Buys A Visible Writing L. C. Smith**

**Model No. 5 perfect machines only of standard size with keyboard of standard universal arrangement—has Backspacer—Tabulator—two color ribbon—Ball Bearing construction—every operating convenience. Five Days Free Trial. Fully guaranteed. Catalog and special price sent free.**
**HARRY A. SMITH, 314 -- 231 North Wells Street, CHICAGO, ILL**

FOR SALE—New crop clover honey, extracted, two 60-lb. cans to case, 20c per lb.
H. G. Quirin, Bellevue, O.

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolians. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo Leon Co., Tex.

THREE-Banded and Golden Italian Queens and pound packages from the Sunny Southland.
Grant Anderson,
Rio Hondo, Texas

## HONEY AND BEESWAX

CASH paid at your bank for carlots and less, of comb and extracted honey.
Wesley Foster, Boulder, Colo.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa, Monroe, Wis.

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

WANTED—Honey We are in the market at all times for unlimited quantities of honey, both comb and extracted. Before selling your crop let us hear from you, quoting your lowest price, either f. o. b your station or delivered Cincinnati. If extracted mail sample, state how it is put up; if comb honey, state grade and how packed.
C. H. W. Weber Co., Cincinnati, O.

## WANTED

WANTED—A second-hand 2-frame honey extractor. Send description and lowest price.
J. J. Fitzgerald, Mitchell, S. D.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Second-band honey extractors; tell me what you have and price; also wax presses. W. D. Soper, Jackson, Mich.
Dealer in all kinds of Bee Supplies.

## SITUATIONS

WANTED—Two men to work with bees; state age, experience and wages; position for season, or may be permanent for right man after trial. The Rocky Mountain Bee Co.,
Billings, Mont.

WANTED — Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

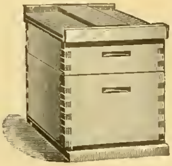
## FOR SALE

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling.
W. M. Penrod, Ronneby, Minn.

---

# More Profit in Bees



If you get your supplies early enough to have everything ready for the honey flow. Get your supplies NOW. Catalog FREE.

MADE RIGHT
BEE SUPPLIES

*Quality ... Service*

## THE KRETCHMER MFG. CO.

**301 Eleventh Avenue**
**Dept. A** **COUNCIL BLUFFS, IOWA**

---

# "Practical Queen-Rearing"

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointers in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.
(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

---

# BEEKEEPERS

KEEP IN TOUCH WITH

# Leutzinger & Lane

236-238 Drumm St.
SAN FRANCISCO, CALIF.

Buyers of EXTRACTED and COMB HONEY

Shippers and Exporters of HONEY

[ The WORLD is Our Market ]

# Crop Report and Market Conditions

For our July number we asked the following questions with regard to conditions:

1. Condition of honey plants compared to last year?
2. How is the honey-flow?
3. Honey movements and prices. What is being offered by the buyers for honey?
4. What do you expect to realize for your honey?

### HONEY PLANT CONDITIONS

Conditions are extremely spotted this year with regard to honey plants. In some localities the conditions are favorable, while in others the reverse is true. All in all, it seems that in the whole eastern half of the country the plant prospects will hardly be up to last year. Reports by States follow:

Massachusetts reports 100% as good as last year; Connecticut is fair, with New York sending in conflicting reports, the average of which would hardly warrant expecting as good a stand of honey plants as last year.

The South is about normal, with Kentucky showing a decided improvement over 1917, as does Alabama and Mississippi.

Pennsylvania only shows a fair prospect, while Ohio seems to be about 135% as good as 1917. Michigan is about normal, while prospects in Wisconsin are very poor.

Illinois has much more clover than last year, and Iowa very much less. In fact, the only parts of Iowa where much honey will be harvested are where there is basswood and sweet clover. Missouri again has very poor prospects; Nebraska claims 50%, while Kansas is about normal, as is South Dakota. Minnesota's honey plants are only 50% as abundant as in 1917.

Texas reports very much better conditions than last year. It is to be hoped so, as conditions last year over a majority of the State were about as bad as could be.

In the whole of the West conditions are at least as good as in 1917, with the exception of Idaho, which had such a splendid crop last year that it doubtless will not be completely duplicated in 1918. In California plant conditions range from 60 to 100% of 1917.

### THE HONEY FLOW

The New England States expect a very good flow. New York claims she will have 75% of 1917.

In the South there should be as much honey produced as in 1917, even though Georgia claims less. Alabama and some of the other sweet clover regions, should help bring up the average.

Pennsylvania expects only a fair crop, while Ohio's hopes are still high. Wisconsin will have a partial failure, with Michigan producing probably 60 to 80% of what she did in 1917. One large producer in Minnesota expects a failure on account of drought. Other reports would indicate half a crop.

Indiana and Illinois may have some honey, while Iowa and Missouri will approach a crop failure, unless the weather should be extremely favorable towards honey secretion the latter half of the summer.

There is little or no flow in Texas now, but prospects are good for later flows.

It is yet a little early to predict for the West, as their flow does not begin in earnest till July. New Mexico already reports honey coming in fairly well. The whole West should average slightly better than in 1917, and with at least as many bees to gather the crop.

The orange honey flow in California has been very satisfactory, with that from sage not so good. The total crop cannot excel that of last year very much.

### HONEY PRICES

Some buyers are still offering as low as 13½ cents for honey on contract. The bulk of offers are in the neighborhood of 15, 16 and 17 cents. Several cars of orange have been bought of producers at 21 cents, while some of the producers are holding their orange crop for 25 cents. One commission firm on the coast offered a car of orange a few days ago for 21½ cents f. o. b. coast.

One or two beekeepers have sold their crop at 17 cents, while one car of Imperial Valley honey was sold recently at 17½ cents f. o. b. shipping point.

With very few exceptions, all old honey is cleaned up, and at prices ranging at 20 cents or better.

The demand for honey is exceedingly good, in fact better even than it was at this period last year. Foreign buyers are appearing in the field, some making arrangements through their home consulates to get ocean transportation as soon as the crop is available

The stringent regulations on sugar will no doubt help the sale of honey at home, even at the higher price.

### HONEY PRICES EXPECTED

There is the greatest contrast between conditions among beekeepers this year and last. Last year it seemed that the beekeepers were anxious to sell, and at the prices offered by the buyers. This year very few forward contracts have been made. The majority of producers are willing to wait and take what the market will be at the time they are ready to sell their crop.

The bulk of suggestions as to price expected ranged around 20 cents for extracted, wholesale, and $5 per case for comb. Some state that they are going to hold for 25 cents wholesale in car lots.

With present prospects not too flattering for a honey flow total in excess of last year, and with the demand as strong as it is already, it seems that a price of 20 cents for white extracted, wholesale, should not be out of the way. How much higher the price may go is hard to conjecture.

Push your Home Market,
even though prices
are high.

The time may come again
when Home Markets
will be useful.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item**, a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping**, or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## Texas Queens

**No more bees in packages, but queens galore from June 1 to October 1. Untested, 75c each, $8 per doz.; tested, $1.25 each, $12 per doz. I have the Three-banded Italians and Golden Italians; very choice stock.**

GRANT ANDERSON,
Rio Hondo, Texas.

## QUINN'S QUEENS OF QUALITY

Have no superiors—"There's a reason." Are Mendelian bred, good qualities accentuated. Gray Carniolans, Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease resistant, white comb builders—they deliver the goods.

ITALIANS, 3-banded, line bred, pedigreed; need no boosting; they speak for themselves. Prices on application at either apiary.

**CHAS. W. QUINN**

Rt. 1, Box 319
Houston, Texas

Box 275
Ft. Myers, Florida

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

**Price of 1,000 gummed, 85c.**

**American Bee Journal, Hamilton, Illinois**

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

## Attention Eastern Beekeepers

**WE HAVE A COMPLETE STOCK OF**

### Lewis Beeware and Dadant Foundation

We are located on a main line of the New York Central and the West Shore, as well as branches of the Pennsylvania and Erie Railroads; also the Rochester & Syracuse Electric Line, which assures prompt delivery. Parcel Post orders receive prompt attention.

Five and ten-pound pails, also five-gallon cans and glass jars.

Queens, three-banded and Golden Italian, ready for delivery now. Untested, $1 each; 6 for $5.50; 12 for $10; tested, $2; 6 for $10.

Safe delivery guaranteed, dead queens being replaced upon their return.

**THE DEROY TAYLOR CO.**
**Newark, New York**

## Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly.

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**No Nuclei or Bees by Pound.**

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

## Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**

**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

**QUEENS** Hardy, Long Lived and Disease Resisting **QUEENS**

**Twenty-Two Years of Select Breeding Gives Us Queens of Highest Quality--Queens for Honey Production--Queens of Unusual Vitality**

*"There are few Queens their equal and none better."*

WHAT BEES DO, HEADED BY OUR QUEENS

"One swarm made 185 sections of honey and another 296 sections. I am well pleased."—Melvin Wysong, Kimmell, Ind.

"Your bees averaged 150 pounds of surplus honey each. I find them not only hustlers, but gentle."—Fred H. May, Meredosia, Ill.

"I have tried queens from several different places and like yours best of all."—C. O. Board, Alabama, N. Y.

"We are only one mile from Lake Erie and exposed to high, cold winds; in fact, this is the windiest place along the great lakes. Your bees were able to stand the winter with only an insignificant loss, and we would have no others. As for honey, they averaged 175 pounds of extracted surplus, did not swarm, and gave an artificial increase of 30 per cent, which is as fine a record as can be had in this locality, especially when the work is done entirely by amateurs." Name furnished on request. North East, Pa.

**Price List of Our Golden and Three-Banded Italian Queens**

| | | | |
|---|---|---|---|
| Untested | $ .75; 25 or more, $ .60 each | Select untested | $ .90; 25 or more, $ .75 each |
| Tested | 1.50; 25 or more, 1.25 each | Select tested | 1.75; 25 or more, 1.60 each |

We guarantee safe arrival of all Queens, that they are very resistant to European foulbrood, and, in fact, will give complete satisfaction. Wings clipped free of charge. Our capacity is 2,000 Queens monthly.

**M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.**

**Mr. Beekeeper:**

Increase your honey crop by giving the bees all the super room that they can fill.

We will help you by furnishing you with fixtures ready for use, at the lowest prices.

Hives and supers, nailed and painted; frames, wired and filled with full sheets of foundation; sections, filled with foundation, can be shipped on short notice.

The Lewis Line is in the lead with the live honey producers.

**WESTERN HONEY PRODUCERS**
**Wholesale and Retail Distributors**
**SIOUX CITY, IOWA**

"OUR BEES ARE GENTLE"

**Re-Queen**

from our vigorous strain of

**Italian Queens**

They have won a national reputation as disease resisters and great honey-getters.

Our prices for delivery after June 15:

**Untested,** 1 to 4, $1 each; 4 to 6, 95 cents each; 6 to 9, 85 cents each; 9 to 12, 80 cents each; 12 to 24, 75 cents each.

**Tested,** $1.50 each.

**Breeders,** $5 each.

Write for descriptive booklet.

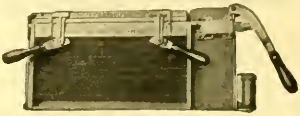
**JAY SMITH**
Route Three VINCENNES, IND.

PATENTED

**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2.50, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calif.**



PAT. APPLIED FOR

C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases**.

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

EARLY ORDER DISCOUNTS WILL

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF

# BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

**CHAS. MONDENG**
**159 Cedar Lake Road MINNEAPOLIS, MINN.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

## ORDER YOUR BEE SUPPLIES EARLY

**We want you to have our catalogue. Send for one.**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

## QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

### Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4.25; doz., $8.00; select tested, $1.25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

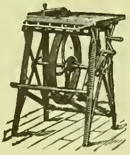
## BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and quality. Write for catalog.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

# BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

## Root's Strain of Italian Queens

¶ Owing to the enormous demand for our Queens, we have been compelled to advance our prices over last season, In numerous cases this strain has proven itself to be

**ALMOST ENTIRELY IMMUNE TO EUROPEAN FOULBROOD**

¶ The Queens are reared by one of the best queen-breeders in the whole United States, namely, Mr. M. P. Pritchard & Sons. They are famous for their resistance to European foulbrood and

**FAMOUS FOR HONEY-GATHERING QUALITIES**

*Write for special terms.*

**The A. I. ROOT COMPANY**
MEDINA, OHIO, U. S. A.

---

**THIS IS THE "SIGN" ON EACH CYPRESS BOARD**

S C M A
No. of Mill
TRADE MARK REG. U.S. PAT. OFFICE

**DON'T GUESS MAKE SURE. "HAVE A LOOK"**

CYPRESS "THE WOOD ETERNAL"

For all uses that invite decay (for instance, bottoms) demand

**"ALL-HEART"**

### "Tidewater" Cypress

"THE WOOD ETERNAL"

The "arrow" on the end of each board identifies the genuine product of the cypress mills whose CHARACTER of timber, methods of manufacture, and complete responsibility enable them to be members of the Association.

THIS FACT IS YOUR PROTECTION.

ACCEPT NONE BUT TRADE-MARKED "TIDEWATER" CYPRESS

CYPRESS DEFIES DECAY

**SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION**
1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's If he hasn't it, LET US KNOW

# AMERICAN BEE JOURNAL

JUL 30 191

AUGUST, 1918

# Ready Money for Your Honey

**SHIP IT NOW**

If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

**PROMPT REMITTANCE**

Remittance sent by return mail for every shipment we receive. Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

**OLD COMBS and CAPPINGS**

Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED---COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

## Our New Home

We are now located at Pearl and Walnut Sts., and have the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

## We Sell Lewis' Beeware

"Lewis" stands for the highest quality Beeware known. It is safe and reliable. "Made like furniture." We are glad to fulfill your needs.

SEND FOR OUR 1918 BEE CATALOG

**DADANT'S FAMOUS FOUNDATION**

**ROOT'S SMOKERS and EXTRACTORS**

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
CINCINNATI, OHIO

# QUEENS

**Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 Years a Queen-breeder.**

| Before July 1.— | 1 | 6 | 12 |
|---|---|---|---|
| Select untested | $ 1.50 | $ 8.00 | $15.00 |
| Tested | 2.00 | 10.00 | 18.00 |
| Select tested | 2.50 | 14.00 | 25.00 |
| 2-Comb Nuclei | 4.00 | 22.00 | 42.00 |
| 3-Comb Nuclei | 6.00 | 33.00 | 60.00 |
| 8-frame Colony | 10.00 | 55.00 | |
| 10-frame Colony | 12.00 | 68.00 | |
| 1-lb. package bees | 3.00 | 16.00 | |
| 2-lb. package bees | 5.00 | 28.00 | |
| After July 1.— | | | |
| Select untested | $ 1.00 | $ 5.50 | $10.00 |
| Tested | 1.50 | 8.00 | 14.00 |
| Select tested | 2.00 | 10.00 | 18.00 |
| 2-Comb Nuclei | 3.50 | 18.00 | 35.00 |
| 3-Comb Nuclei | 4.50 | 25.00 | 45.00 |
| 8-frame Colony | 8.00 | 45.00 | |
| 10-frame Colony | 10.00 | 55.00 | |
| 1-lb. package bees | 2.50 | 14.00 | |
| 2-lb. packages bees | 4.50 | 25.00 | |

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, $5 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above prices on bees by pound, nuclei, and colonies do not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference: Any large supply dealer or any bank having Dun's reference book.

**H. G. Quirin, Bellevue, Ohio.**

---

# THE FLOWER AND THE BEE PLANT LIFE AND POLLINATION

By JOHN H. LOVELL,
Botanical Editor of "The A B C of Bee Culture"

Every beekeeper needs this volume in order to understand the honey flora. Descriptions are given of bee-flowers, bumblebee-flowers, butterfly-flowers, hawk-moth flowers, flowers pollinated by the wind, and many others. It will also be of great interest to gardeners, fruit-growers and lovers of nature generally. It is fascinating, not only because of its very great informative value, but because of the sense which it imparts of the beauty of nature as revealed in the subject. Do you know why some bees visit only one kind of flower? Or how many flowers there are of each color in eastern North America? Or whether bees and butterflies prefer certain colors?

Illustrated by 119 photographs taken by the author, chiefly of flowers natural size. $2 net.

*Will be sent postpaid on receipt of price, by* JOHN H. LOVELL, *Waldoboro, Maine.*

**Charles Scribner's Sons, Fifth Ave., New York**

---

# MOTT'S NORTHERN-BRED ITALIAN QUEENS

that resist disease well. Those that resist disease must be hardy, prolific, and hustlers; they are gentle. Bees per pound. Plans on "How to Introduce Queens and Increase," 25 cents. List free. Untested $1 each.

**E. E. MOTT, Glenwood, Mich.**

---

# BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

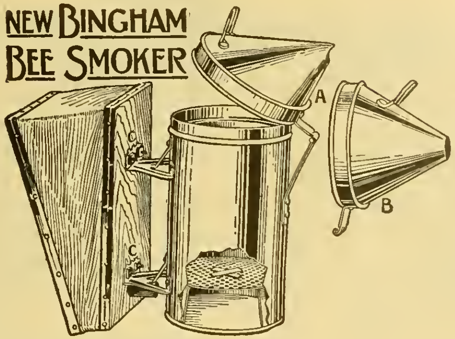
A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

---

# New Bingham Bee Smoker



In 1878 the original direct draft bee smoker was invented and patented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly thirty-five years, and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name in the beekeeping industry.

Bingham Smokers have been improved from time to time, are now the finest on the market, and for nearly forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies, or direct from the manufacturers.

| | Size of Stove | Weight | Retail |
|---|---|---|---|
| Smoke Engine | 4 x7-inch | 2¼ lbs. | $1.25 |
| Doctor | 3½x7-inch | 2 lbs. | 1.00 |
| Two above in copper, extra each | | | .50 |
| Conqueror | 3 x7-inch | 1¾ lbs | .85 |
| Little Wonder | 3 x5½-inch | 1¼ lbs. | .65 |

Hinged cover on the two larger sizes. Postage extra.

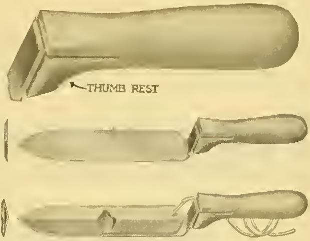
**A. G. WOODMAN CO., Grand Rapids, Michigan**

---

# BINGHAM HONEY UNCAPPING KNIVES

## WITH NEW COLD HANDLE

We are furnishing the same quality steel, best money can buy, thin-bladed knives that Mr. Bingham manufactured years ago. The old-timers all remember these knives and many are writing in, as Mr. Volstad in the following letters. The substitutes offered by others have not given the satisfaction desired.



Lyle, Minn., June 21, 1917.

*A. G. Woodman Co.*

Gentlemen: Have you the thin, good working uncapping knives we used to get about 20 years ago and that worked to perfection?

K. H. VOLSTAD.

We sent an 8½ and 10-inch knife and received the following letter:

Lyle, Minn., July 5, 1917.

*A. G. Woodman Co.*

Gentlemen: Knives received; glad you sent them at once. They are just what I want and have been looking for, but did not know where to get them.

K. H. VOLSTAD.

Many of the most extensive honey producers insist on the Genuine Bingham Knives. Mr. N. E. France, of Platteville, Wis., gave us a fine unsolicited testimonial on the steam-heated Bingham Knife, too long for this space.

| | Weight | Price |
|---|---|---|
| 8½-inch blades | 12-oz. | $ .90 each |
| 10-inch blades | 14-oz. | 1.00 each |
| 10-inch blades, steam heated with tubing | 20-oz. | 3.00 each |
| Steam Generator, with safety valve | 40-oz. | 2.00 each |
| Double Burner Oil Lamp Stove | 7 lbs. | 2.75 |

Postage extra

**A. G. WOODMAN CO., Grand Rapids, Michigan**

---

# TIN HONEY PACKAGES

| | |
|---|---|
| 2 lb. Friction Top Cans in cases of 24 | $ 1.15 per case |
| 2 lb. Friction Top Cans in crates of 612 | 24.00 per crate |
| 2½-lb. Friction Top Cans in cases of 24 | 1.35 per case |
| 2½-lb. Friction Top Cans in crates of 450 | 20.00 per crate |
| 5 lb. Friction Top Pails in cases of 12 | 1.10 per case |
| 5 lb. Friction Top Pails in crates of 100 | 7.50 per crate |
| 5 lb. Friction Top Pails in crates of 203 | 14.50 per crate |
| 10 lb. Friction Top Pails in cases of 6 | .90 per case |
| 10 lb. Friction Top Pails in crates of 113 | 12.50 per crate |

For a limited time we offer the above packages at these special low prices, shipment to be made from Chicago. Write for prices on 60-lb. cans, giving quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Michigan**

## "falcon"

### THINGS THAT ARE NECESSARY FOR YOUR APIARY

1. There must be a good location for the apiary.
2. Queens must be healthy and vigorous to put life into the hives. (Our queens are the best to be had and at reasonable prices.)
3. Your bees cannot do the work they should if you do not give them the best with which to work. If they have ample storage space, if they can work all the time without slack motion, they will be more contented and swarmless. To accomplish this, you must give them ample storage space, that is, the **RIGHT HIVES AND SUPPLIES. "falcon"**

Beekeepers should be placing their orders early for their early needs. He who waits is apt to suffer. These late beekeepers who want their goods in such a hurry at the last minute will lose some of the honey crop by not furnishing their bees with ample storing space. Railroad embargoes and rush business make deliveries slow.

Our famous **"falcon"** supplies will please you. Do not wait. Order now and strike while the iron is hot. **"falcon"** means the best, the standard of perfection. Red Catalog and Simplified Beekeeping upon request. Dealers everywhere.

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Good Beehives Come From**

# HONEY WANTED

We are in the market at all times for unlimited quantities of Honey, both comb and extracted. Before selling your crop let us hear from you, quoting your lowest price, either f. o. b. your station or delivered Cincinnati. If extracted, mail sample and state how it is put up. If comb honey, state grade and how packed.

**C. H. W. Weber & Company**
**CINCINNATI, OHIO**

# TENNESSEE-BRED QUEENS

**46 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

# We Offer

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**
**Glen Cove .. New York**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

### A BOOK FOR BEGINNERS

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# ?? WHY ??

Why is it that so many beekeepers prefer Dadant's Foundation? Why does it give such good satisfaction and why is it that when tested side by side with many other makes beekeepers have reported that "they take to Dadant's first?"

**Do We Use Special Sheeting Machinery? No**

We use the Weed process of sheeting our beeswax into endless rolls, and it is the same process as used by nearly all manufacturers.

**Do We Use Special Foundation Mills? No**

We use the same kind of mills as are used by practically every foundation manufacturer in the world.

**Do We Use Special Beeswax? No**

We use beeswax such as is produced by beekeepers all over the United States.

## THEN WHY?

**BECAUSE**

Our beeswax is cleaned in such a way that all impurities are removed and all the fine qualities are retained.

**BECAUSE**

Sulphuric and other acids recommended and used by many manufacturers for cleaning beeswax are not used by us.

**BECAUSE**

Our motto is and always has been "EVERY SHEET PERFECT"—and we live up to it.

**BECAUSE**

For FORTY YEARS comb foundation has been, and still is, our *specialty*. When you get Dadant's Foundation you know that you are getting the best that money can buy. When you send your beeswax to us to be worked into foundation you know that you will get perfect work done. When you ship us your old combs and cappings to render you will get the maximum of wax they contain and, if desired, this wax will be worked into the finest quality of foundation made.

It is Up to You, therefore, to insist on Dadant's Foundation when you order your goods from your dealer. If you cannot get it from him, then order from us.

**DADANT & SONS**

**HAMILTON, ILLINOIS**

LEWIS SECTIONS
HAVE
INDIVIDUALITY

BECAUSE they are in a class by themselves. They are not like other sections. Very rarely do they break in folding---in fact one of our customers writes us that he has put up (folded) thirty thousand Lewis Sections in a season and has not found *one section* in the whole lot that was not perfect. Beekeepers everywhere, no matter what their preference may be for hives or other bee equipment, agree that, when it comes to sections, the LEWIS SECTIONS are supreme. This is—

**Because** the material which goes into a **Lewis Section** is of the right kind, especially selected for the purpose. The stock is sorted and re-sorted—the discolored stock thrown out, leaving only the whitest material to go into **Lewis Sections.**

**Because** the V groove, which is the most important process in the manufacture of a section, is made just right. In the **Lewis Section** it is cut just deep enough so that the section will not break in folding. The **Lewis Section** expert has been supervising the manufacture of **Lewis Sections** for over thirty years.

**Because** the finishing of the section is given the utmost care. The **Lewis Sections** are polished on both sides in a double-surfacing sanding machine designed in the Lewis plant especially for this purpose. It insures the uniform thickness of each and every section. The dovetailing of the ends is smooth, clean and just right.

**Because** even after the **Lewis Sections** are completely manufactured, the packing is considered a very important part of the marketing. All **Lewis Sections** are put up in regular standard packages containing a good, full count. A tight wooden box is used, entirely enclosing the contents, so that no discoloration from air can occur, no matter how long the sections are carried in stock. The package is also strongly braced at all corners, insuring delivery in good order.

**AT THE SAME PRICE YOU PAY FOR OTHER STANDARD MAKES OF SECTIONS YOU GET ALL OF THE ABOVE WHEN YOU BUY THE LEWIS SECTIONS**

**INSIST ON LEWIS SECTIONS — LOOK FOR THE BEEWARE BRAND**

**G. B. LEWIS COMPANY**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS U.S.A.
MAKES THE FINEST

**Watertown, Wisconsin**

**ORDER FROM YOUR NEAREST DISTRIBUTOR**

AMERICAN BEE JOURNAL

VOL. LVIII—NO. 8 HAMILTON, ILL., AUGUST, 1918 MONTHLY, $1.00 A YEAR

# A TRIP IN SOUTHERN GEORGIA

## The Editor Visits the Georgia Apiaries of J. J. Wilder, Tramping Through the Swampy Underbrush to Get Close-hand Information

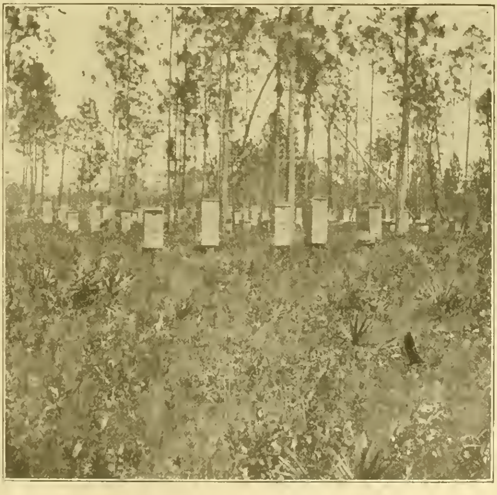
RETURNING home in the last days of March, I left wife behind with our children, and was advised by Mr. Wilder to stop at his southern Georgia apiaries, in charge of Mr. W. B. Bradley, with headquarters at Fargo, Ga., on the head waters of the Suwanee River. My wife, in her girlhood days, had often sung of the "Suwanee River, Far, Far Away," but had never known where it was located, and was almost tempted to go with me on that account.

Many people have read of Wilder's numerous apiaries, some rather incredulously, for he numbers them by the hundreds and his colonies by the thousands, shipping 10 or 15 carloads of honey annually. Glints of disbelief have been emitted occasionally by a reader. This was an excellent opportunity to find out how much his statements were worth.

Mr. Bradley, a bright, wide-awake young fellow, was at the station at Fargo when I arrived there in company with Mr. and Mrs. Wilder, who were going home to Cordele and continued on the way. Bradley was going to an apiary 20 miles north, where he had left his automobile, so I got on the train again and we stopped at Thelma. The apiary was in sight of the station, right in the middle of the woods. Imagine a flat country of very straight, slim pines, from which all the large trees have been removed, leaving only the stumps and a thick growth of underbrush composed of saw palmetto, seven or eight different kinds of huckleberry brush, a large amount of gallberry brush (ilex globra), and an occasional cypress swamp with shallow water where different water bushes grow, among which the tupelo gum, nyssa capitata or ogeechee lime, furnishes abundance of honey-producing flowers in April and May.

There, near an apiary of some 80 colonies, two men were working, preparing supers and frames for the harvest. The bee-house, measuring about 20x36 feet, was full of extracting half-story supers, with empty combs in them, and a large lot of barrels which had very evidently contained honey the previous year. It was a business-looking place.

Wilderness of Saw Palmetto and slender Pines in Southern Georgia



Wilder's Apiary at Fruitland, Ga.

While they were cooking the noon meal, I loafed about the swamp, after taking my bearings, for a man readily gets lost in that immensity of flat, sandy, pine land. It was then that I found out why they call by the name of "saw" palmetto the dwarf palmetto, sabal serrulata. Its stem is armed with sharp teeth like those of a saw. The cabbage palmetto, so rich looking in the heart of Florida, is not to be found at this point. The climate is too cool.

The bees were making honey and I noticed them sucking from some huckleberry blossoms, although I was told that these plants produced no honey. Dinner over, Bradley and I started in the auto truck through the swamp, following a winding trail northward, occasionally passing a darkey's cabin, one room with a door, and windows without sash, only wooden shutters. What do they live on in this wilderness? Corn pones and a little bacon. No chickens; rarely a garden spot; only a few razor-back hogs running at large about the swamp. Here and there a white man has settled. He tries to grow crops, but his principal business, if he is not a beekeeper (and beekeepers are few and far between) is to harvest the sap of the pines, which is distilled and made into turpentine. Here and there a northern man has grubbed out a fine farm, built a good home with fences, and has left. The house is empty. Why? He was only a northern sucker! He thought he would show the southern people how to till the land, but the white sand has gotten the best of him.

We traveled some 50 miles that afternoon and visited five apiaries. We stopped at one of them a couple of hours and put on supers, for we had a lot of extracting supers with us in the truck. Mr. Bradley is only one of the numerous men Mr. Wilder employs in his business. He is certainly a capable man. His crop of 1917 was 125 barrels. A mute testimonial of an extensive crop is to be seen in the pile of empty combs and supers and the empty barrels in rough sheds at the apiaries, getting ready for the next crop. The hives are all 8-frame Langstroth, with Hoffman frames, the supers half-story. Occasionally a colony is given two full stories, if the queen is sufficiently prolific. Here I learned how one can spread the brood in a hurry with the Hoffman frame; as four or five frames may be shifted at one motion of the hive tool and an outside frame inserted in the center. No danger of chilling the brood in southern Georgia in March, and Mr. Bradley was spreading brood and inserting empty combs in the center, everywhere.

The Chincapin of Georgia and Florida

The Wilder apiaries contain a number of colonies of Caucasian bees. These are great "propolizers," as has been shown to us before by Mr. Atwater. At the Bradley apiaries I saw colonies that had almost entirely closed their wide entrance with propolis, leaving but a small hole for the workers to go back and forth, and giving clear evidence of the correctness of the name given by the ancients to this substance "pro polis," two Greek words meaning "before the city." A similar condition is brought about by the bees in the Holy Land, as mentioned by Mr. Baldensperger in our June number. The endless fight against death-head moths induces them to strengthen and narrow down the "gates of the city" with "pro polis."

Chincapin in the Suwanee swamps

The apiaries are in the brush, away from houses, close to the barely visible auto trail. In nearly every case they are protected only by a posted notice offering a reward of $50 for the conviction of thieves. Mr. Bradley has 15 apiaries under his charge. He said that they lost several hundred pounds of honey by thieves every year. But what to do? The Georgia "cracker," "poor white trash" the negro calls him, is, like the negro, of the opinion that whatever he finds in the woods is his property, or ought to be. Hence an occasional theft from the thrifty apiarist, who must figure that in the profit and loss; for to seek the thief and have him punished would probably not be safe. Things burn easily in the pine wilderness. Southern Georgia was ablaze with forest fires in every direction as I traveled through it, and when Mr. Wilder asked Mr. Bradley what the prospect was for honey, the answer was, "It is good if they don't burn us out." Miles and miles of good bee-pasture are devastated by the carelessness of the inhabitants, who seem to delight in burning the woods. At each apiary, the pine needles which cover the ground must be regularly raked away and destroyed, for fear of fire.

The afternoon trip over, we returned to the city of Fargo, late in the evening, through the swamps, the brush and the sand.

The next morning I had the pleasure of visiting the Suwanee River, a wilderness stream, looking like a creek, there, only a few miles from its head, but which I am told widens into an immense river near its mouth, traveling through swamps most of the way. Along this stream, besides the tupelo gum is found the chincapin, castanea pumila, whose flowers produce very dark, inferior honey, but Mr. Wilder, who has a number of apiaries on the lower Suwanee, uses this honey for feeding.

In all these southern, flat, pine timber lands, the principal business of a town is turpentine and lumber. The sawmill is the life of Fargo, for Fargo is no exception to the rule. On the day I was there the town was in a flurry, for the Mill Company had gone into bankruptcy two months before and on that day the mill was sold at auction, with all that belonged to it. This included three-fourths of the houses and the hotel. It was sold in a lump to one party, and the old lady who kept the hotel wondered whether they would close the mill and turn her out of the hotel, which she had kept for a number of years. She was very talkative, and said to me: "I hope they will keep the business going until the war is over, for if they do not, I will starve."

The next day I went to Cordele, where more apiaries were to be visited by me. Beekeepers in the north who have wondered whether Mr. Wilder did not overstate when he wrote of his hundreds of apiaries, need not be in doubt, for he has apiaries all over the south, with reliable men in charge. Mr. F. T. Branch, the man with whom I visited the bees around Cordele, has charge of 20 apiaries, some 1,200 colonies, and these are, like the ones in southern Georgia, located in the brush.

Is the South, therefore a reliable country for beekeepers, and would it be profitable for a northern beekeeper to move there? My answer is in the negative. The Wilder method is certainly good. Many apiaries, scattered over immense spaces, in charge of reliable men who know the resources of the country and can make a profitable season out of a small per-colony yield, bring results. But the drawbacks are numerous. Difficulties of travel, swamps, white sand, unimproved soil. The negroes seem to delight in building forest fires, without any very plain purpose, for after the land is cleared it is probably less valuable than when it had still a growth of young pitch pines. It looked very much as if they only wished to see the big blaze during the cool spring nights. These fires are very damaging to the apiarists, for they not only endanger the hives, but also destroy the immediate expectation of a crop from palmetto or gallberry or other low shrubbery. The only safe honey-producing trees after a forest fire are the tupelo gums, which grow with their foot in the water like the cypress.

The Tupelo Gum of the South

Each country has its special resources, its methods, and it is delightful to go from one region to another and see the different crops, from different soils and entirely different sources. But if you have a good location, do not seek a change. Wherever you go you will find difficulties to overcome and you must remember that "a rolling stone gathers no moss."

# How Far Bees Will Go for Honey

By L. B. Smith

If I am not mistaken (I haven't time to look up the files of the American Bee Journal that I have) I subscribed for this journal in the fall of 1881, while the late Thomas G. Newman was editor. I have been a constant reader of it ever since, with the exception of one year. I have read, and written more or less about bees in nearly all the bee-papers published in the United States and some that were published in other countries. I have been a close student of apiculture all my life. With this introduction to the readers of the American Bee Journal, I shall take up my subject of the distance bees will travel, or fly, for honey.

In the spring of 1882 I purchased my first yellow-banded bees—Italians and Cyprians. People came for miles to see those bees, as they were quite a novelty then. At that time I lived in what was known as the "cross timbers" of Johnson County. Not many bees were kept, and my yellow bees were the first of that color that had been brought into the country. The location was a poor one; all other bees in the community were either black or brown in color, and were as much alike as two black-eyed peas, as the expression is sometimes used. But to get to my point, it was not infrequently that I saw those yellow bees of mine four and five miles out from home, busily engaged in gathering nectar from horse-mint, wild marigold and other plants in season. At that time I was a novice myself, and gave little thought to the subject, supposing that bees traveled that far or farther, if necessary. Sometime later, however, from reading my beebooks and journals, I noticed that several authors stated that one and one-half to two miles was supposed to be the limit that bees traveled for stores. This set me to thinking, and to investigate further.

In the spring of 1883, an old-time box-hive beekeeper came to my home and said: "Smith, I want you to come down and help me to find a bee-tree." He went ahead to say that some very beautiful yellow bees were working on the blossoms in his orchard. Being a great lover of such pastimes, I agreed upon a date to make the hunt. When the date arrived we met, fully prepared with our equipment to make the search. Sure enough, when we reached his home, there were the yellow bees on the blossoms in great numbers. We proceeded to catch and bait some of them. We soon had a line started that went directly toward my home. We baited and lined those bees for hours, until we had traced them to within a mile of my apiary. We were then convinced that they were my bees. By air line it was fully five miles from my yard to the home of my neighbor.

The two years, 1886 and 1887, were extremely dry in Texas, being remembered by many people as extensive droughts. The first of these years was a total failure for bees; but the second was better. A few local showers of rain fell in different parts of the county. Some parts of the State had fair rains; but in my own immediate vicinity we had practically no rain. Some seven miles away from my home was the black land belt; in favorable years the horse-mint grew to perfection there. It was the chief dependency for a honey crop nearly all years. In this year, several local rains happened to fall there. There was a good bloom in a short time, and my Italian and Cyprian bees averaged a surplus of sixty-eight pounds of honey per colony. The distance from my apiary could not have been less than six or seven miles. While dealing with this point, let me quote a few lines written at that time for Gleanings in Bee Culture, for 1888, March issue, page 206. "To further prove that they (bees) will go six or eight miles, I remember that this year (1887) has been noted for drought, and what rain came has only been partial showers. In June, when the mint blooms, everything here was burned up, but six or eight miles out on the prairie, there was plenty of rain in time to make the mint crop splendid; the result of it is, I got sixty-eight pounds of extracted honey to the colony." Does this look to you, my reader, that bees fly not more than two miles for stores? Don't tell me that I was mistaken, and that the bees gathered this honey from some other source. I was familiar with all the surrounding country for miles; furthermore, I am sure that this plant was not growing any nearer my apiary.

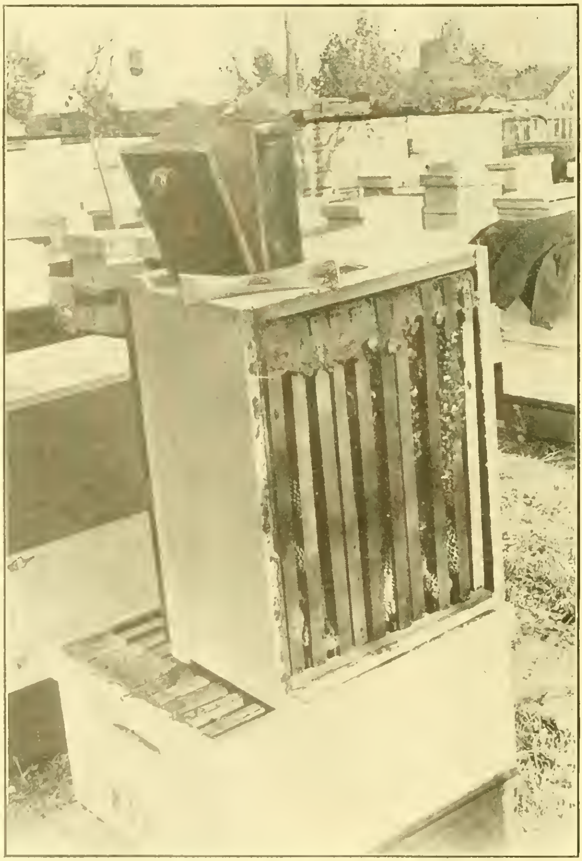


Fig. [illegible] Great Propolizer

At another time, in this same locality, I got a surplus of twenty pounds of comb honey to the hive from the wild marigold, when not a plant of it grew nearer than four miles of my apiary. That year the crop was plentiful about six miles away.

Some three years ago, during the "kinnikinic" bloom—one of the sumac families—a friend of mine was attracted by the loud humming of bees passing over him. This man, Mr. D. H. Stribbling, is a beeman himself, and, being interested, he stopped to investigate. He soon discovered bees by thousands passing over him. From the direction they were coming, and from the color of several, he was persuaded that they were from my own apiary. At that time, he tells me, he was fully three miles from my home yard, and the bees had to go at least one mile further. My home apiary here in Llano County, is situated approximately two and one-half miles from any mesquite timber; yet during a fair blossom this apiary stores surplus honey from this tree about as fast as my outapiaries that are in the midst of the bloom.

Now, in conclusion, it is unnecessary for me to take up more space. I am sure that bees do fly this far here in the South, and that they do gather surplus honey a great deal farther than two and one-half miles from home. Instances are too numerous to the contrary; and too many have reached the same conclusion that I have. Now, gentle reader, understand that I have no long-distance or long-tongued bees for sale. I am merely interested in knowing more about the honeybee.

Llano, Texas.

## Entrances

By Arthur C. Miller.

RECENTLY the location of the hive entrance in relation to the position of the combs has again attracted attention, but this time in connection with comb conditions and not with temperature within the hive.

Some years ago beekeepers had a

long and earnest discussion as to whether the hive entrance should be at the side or end of the hive, or, more properly, whether the sides of the combs should be toward the entrance or the ends towards it. The arguments had wholly to do with temperatures, the side entrance being called the "warm" and the end the "cold." Then some gentle and sympathetic soul put a spoke in the wheel by saying that the bees could reach any desired part of the hive easier and quicker with the ends of frames to entrance than the other way, as if time or labor was of consequence to bees. So the supply men settled on the end way. But not so all beekeepers, some wise ones stuck to the side way. Some who were wise or otherwise used two entrances, the second one being an inch hole bored half way up the front of the hive.

To avoid raising the issue of relative warmth, let me say right here that my present remarks have to do with the condition of the combs and position of stores as affected by location of entrance. Size of entrance also enters into consideration of the case, as does the space below the frames. For sundry reasons a space of about one inch below frames is pretty generally considered to be as little as desirable. It is what I use and the conditions I shall describe are with such space.

With a full entrance it is the habit of bees in the fall to cut away the lower part of the combs adjacent to the entrance, the wax secured being used in capping and re-enforcing combs elsewhere in the hive. After the combs get old and leathery this cutting is not so apparent, but the mischief to the combs occurs long before they get tough and black.

Where the combs are end to the entrance the lower front corners are cut away, often for two or three inches back and up. The following spring that space is filled with drone comb.

If combs get turned end for end the other corner gets cut away, and it is not unusual to find both corners filled with drone comb or 9 square inches in each comb, which is 90 square inches of drone comb in a 10-frame hive. This is equal to four-fifths of an L-comb, and when we add the drone cells found in other places we get altogether too much drone comb, often more than a whole L-comb.

Now, drones are not only costly to raise and maintain, but they are also an excitant towards swarming. Besides the expense of the drones we have the loss of foundation. We buy it and put it in the frames and then the bees cut it out. Not a very profitable procedure. So much for the comb condition.

Position of the stores is affected by entrance location. Regularly we hear the complaint that bees died in winter with plenty of food on the opposite side of the hive. They store their food around the brood-nest or cluster, usually forcing the cluster down close to the entrance if fall supplies are abundant. As they eat back it may be towards one side or the other as well as upwards, and it is not unusual to hear the remark that the bees were found on the sunny or sheltered or warm side of the hive. Now, why permit conditions which favor such misfortunes?

When the combs are side to the entrance, stores are still around the cluster, but as they work back, it is away from the side where the stores are being, or have been, consumed, and toward more stores. Where the side entrance is used it is rare to find dead bees on emptied combs with plenty of food on the opposite side of the hive.

Then, when we are working over the hives it is so much nicer to work at the back of the hives, but if the frames run from front to rear it is awkward to handle them from the back, so we stand at the side, where we can, and we cannot do so on the long row plan so often used and pictured. Furthermore, on the end entrance plan we cannot move a comb without disturbing the entrance guard, and if there is a scarcity of nectar and robbers are about we are not helping matters for either ourselves or the bees. With the side entrance, however, the guards are not disturbed until the front comb is removed, the last one we touch if we are going through the hive as when hunting for the queen. This may sound a small matter, but just work with both styles for awhile and it will be found far from small.

In harvest time and hot weather all sorts of plans are resorted to for increasing the size of the entrance, such as putting a rim or blocks between floor and hive-body, but with the side entrance and one inch space below frames we have an entrance 1x18 inches instead of 1x14 inches, as with the end entrance, an increase of no small amount.

To return to the matter of drone-comb. With the side entrance the only comb with drone-cells is kept next to the entrance, where it is used last by the queen and deserted first. Incidentally, at the beginning that frame has only two-thirds of a sheet of foundation put in it. The bees fill the lower part with drone-comb, and cut and refill to their hearts' content and the beekeepers' satisfaction. The top of such frame is painted a distinguishing color, so that it is not misplaced in manipulation.

Consider these factors, but for the present ignore the "warm" and "cold" notions. These have their value, but are as nothing compared to the others.

Providence, R. I.

---

**Price Recommendations**—The Chicago Northwestern Beekeepers' Association will send out price recommendations again this season the same as last year. These price letters are free to all members of the above association, and to any beekeeper in the States of Michigan, Indiana and Wisconsin who has ten or more colonies of bees. The Secretary would like to have the names and addresses of every beekeeper in the above States to put on the mailing list. We are depending on membership fees to cover the expense of getting out these letters and would like to enroll as members at least 500 of the leading beekeepers in the above and surrounding States. The beekeepers who received these price recommendations last year profited many thousands of dollars by following the advice given. The first letter will be sent out about July 20. Other letters will follow every eight weeks or so. The idea is not to boost prices but to try and establish a more uniform price for honey. The dues to the above association are $1.50 per year, which also includes membership in the State Association, and a cloth-bound copy of their annual report which also contains the proceedings of the Chicago Northwestern annual meetings.

JOHN C. BULL,
Sec.-Treas.
1013 Calumet Ave., Valparaiso, Ind.

Tupelo Gum in Bloom in the Swamps

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
First Nat'l Bank Bldg., Hamilton, Ill.

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

IMPORTANT NOTICE

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which shows that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C P. Dadant.)

# THE EDITOR'S VIEWPOINT

## Bees in Packages by Mail

At last we have a ruling whereby bees in packages, as well as queens and attendants may be sent through the mails.

It is now up to the shippers of bees to make their containers for bees so strong and unbreakable, as well as unleakable, that there will not be any question of this ruling being reviewed for the good of the service.

Following is an extract of the ruling:

> Office of Postmaster General,
> Washington, June 18, 1918.
>
> Order No. 1577.
>
> Amend Paragraph 1, Section 476, Postal Laws and Regulations of 1913, by adding thereto the following as sub-paragraph (a).
>
> (a). Honeybees in quantities may be sent in the mails, without insurance or C. O. D. privileges, under the same conditions as are prescribed for queen bees and their attendant bees when delivery can be made to the addresses within a period of five days. If the cages are wooden the material of which they are constructed shall not be less than three-eighths of an inch thick and the saw cuts therein or space between slats shall not be over one-eighth of an inch wide; if wire screen is used for the sides of the cages there shall be two thicknesses of screen separated by slats at least three-eighths of an inch in thickness. The container shall be provided with a suitable handle and no water or liquid food shall be placed therein. Such parcels shall be transported outside of mail bags.
>
> A. S. BURLESON,
> Postmaster General.

## Transferring Bees by Temporary Anesthesia

In "L'Apicoltura Italiana" Engineer A. Capponi, of San Remo, gives his method of transferring and uniting colonies by putting the bees to sleep with a dose of about 10 gramms of sulphuric ether. The hives or skeps to be transferred are taken early in the morning, before they have begun their flight, placed upon a cloth and the edges of the cloth raised up and tied around the box or skep so the bees may not be able to escape. They are then carried to the house, bottom side up, when they begin to roar from excitement. The liquid is then applied with an atomizer, by cutting a small hole in the cloth. In a minute the hum of the bees lessens. A second and a third hive are then operated upon and by that time the first colony has become completely still. The bees may then be shaken into movable-frame hives. In a little while, if the operation has been well conducted, they come to life again. Bees from different hives may be united in this way without the least fighting on their part.

The claims of Mr. Capponi concerning this method are the following:

1. He kills or injures but a very small number of bees.

2. He avoids stings to himself or others.

3. The work is done in the shortest possible time.

4. He makes colonies of any strength he chooses by mixing together the bees of as many colonies as he desires.

It is necessary to add that this method is employed upon common skeps, or "bugni," as they are called in Italy, that are intended to be killed for their honey by the ignorant owner. Engineer Capponi, who is a progressive beekeeper, saves a large number of bees which are gladly given him by their owners in this way. He relates the astonishment of the "contadini" when they see the bees revive, after a few minutes, in modern frame hives with combs. It gives them an object lesson and causes them to desire to follow the modern ways.

The temporary anesthesia of bees is not without danger. It is quite easy to give them an overdose from which they would never recover. But we live in a time when numerous operations upon human beings would not be possible without chloroform or ether. So, if human beings may be put to sleep temporarily, for an operation, why not bees? However, I can see a number of our old veterans shake their heads with disapproval. They prefer taking the chances of the stings, and so would I.

This is not the first suggestion of anesthesia in the handling of bees. The "Cours D'Apiculture," of Hamet, published some 60 years ago, contains a chapter devoted to this subject. The ingredients recommended by him were puffballs or lycoperdon fungi, nitrate of potash (saltpeter), chloroform, ether, etc.

One of the greatest advantages claimed by him for this anesthesia is the ease with which bees may be united or given strange queens.

## The Chicago Northwestern

We call the attention of our readers to the notice of the Chicago Northwestern Association in another column. Both this Association and the Illinois State Association are useful to Illinois beekeepers. Mr. James A. Stone, of Farmingdale, Ill., is Secretary of the State Association, and a remittance to either him or Mr. Bull will secure membership in both.

## Observation Hives

"I want to put bees in an 8-frame observation hive. Is this the proper time to do it, and what is the best way? TEXAS."

Similar questions are repeatedly asked concerning observation hives. Many people imagine that an ordinary 8 or 10- frame hive with glass on sides and ends is the proper kind of observation hive, so much so that dealers have found it necessary to keep them for sale. But the only observation—or observing—hive worthy of the name is a hive containing only one comb, with glass on both sides, or several combs one above the other, but all supplied with glass on both sides, so that neither the queen nor the bees can escape from observation. In an 8-frame hive the outside combs only, and perhaps the ends, may be seen, but those outside combs are the least interesting and the queen only occasionally may be seen upon them. She usually seeks to hide herself as soon as the combs are uncovered and gone to the inside.

With a single-comb observation hive, we can witness the laying of eggs, the nursing of the brood, the building of combs, the rearing of queens and in fact all the performances of the bees and of the queen. If it is arranged so that a little of the comb is built crosswise, so as to have cells attached to the glass, we can watch bees while they are in this comb. In fact, such a hive is an endless source of amusement and all the information about the natural history of the bee is secured there at first hand and the teachings of the naturalist confirmed.

An observation hive may be stocked with bees at any time during the season when bees breed. An 8-frame observation hive, on the other hand, should be stocked with bees only at the time of making divisions or natural swarms.

The single-frame observation hive is supplied with a comb of brood, bees and honey, from some populous colony, usually from a choice queen, so that if we rear queens in it, they may be of some value. If not sufficiently strong in bees, after it has been stocked, it may be made as strong as desired by shaking at its entrance, on a cloth, a number of young workers who have never yet taken flight; they will adopt it as their own, since they have no knowledge of any other place. Young bees are secured from the brood-combs of a populous colony while the old bees are in the field, in the middle of the day.

Even a neglected, hopelessly queenless observation hive may be the source of information, as it often contains drone-laying workers, who will give us the spectacle of an occurrence which some noted beekeepers have doubted. There is no end to the pleasure which may be derived from such a hive, even for visitors who are not in the least informed about the bees. The cost is small and when the summer is ended the comb and its occupants may be united to some other colony.

### The Export Market

The American beekeeper owes much of the present favorable market to the foreign demand which cannot be met. According to the "Australasian Beekeeper" there are more than fourteen hundred tons of honey being held in storage at Sydney for shipment abroad. In that far country sufficient shipping space is not available and the honey must wait a favorable opportunity. Australia also has a large supply of wheat which would do much to relieve the present world shortage, if ships were available to transport it to the European markets. Ships and more ships, is the crying need to meet the losses caused by the submarines, and to transport the food necessary to meet the constantly growing demand from overseas. It is apparent that high prices for honey will continue for some time, even though the war should close. However, in Australia, where lack of shipping facilities prevents the beekeepers from making the most of the foreign demand, honey is quoted at from 9 to 12 cents per pound. With the termination of the war and the consequent release of shipping, the prices in different places can be expected to equalize, on a basis of normal freight charges.

### Foreign Notes

The Italian editors file away and probably bind their exchanges. Once in a while we read in their magazines something taken out of Gleanings or out of the American Bee Journal of 6 or 8 years ago and it reads to us like new matter and we wonder whether it was really published so long ago. Try to save and bind your bee magazines, and read them over, in a few years. In many cases you will find something useful or interesting which you had forgotten.

The April number of "L'Apicoltore" of Milan celebrates the 80th anniversary of the President of the Italian association, Count Visconti Di Saliceto. We believe the Count is the only representative of an ancient ruling family deeply interested in beekeeping. Beekeepers, as a rule, belong to the middle class, like you and me. We wish Count Visconti many more years of life. We know him to be a true democrat, even though he be a descendant of the rulers of Lombardy.

The same number of "L'Apicoltore" publishes the death knell of the old German Berlepsch system of hives. This system was represented in Italy by the "Sartori" hive. It is being fast replaced with hives of the Langstroth system, under the name of "Dadant-Blatt" hives.

The "Bulletin D'Apiculture" of Switzerland publishes in its April number some studies upon bee paralysis by Dr. G. E. Turesson taken from the Swedish "Bootanisk Tidskrift," translated by Dr. Rotschy. Turesson attributes the invasion of paralysis to the fungi of mold. Without doubt, cool weather, accompanied with dampness is most dangerous for paralysis, May disease, vertigo, or Isle-of-Wight disease.

### Now is the time to Requeen

If you are a careful beekeeper, you will have kept record of the amount of honey produced by each colony in your apiary.

Now that the crop is nearly over, you can devote your attention to increasing the prolificness of your queens by breeding new queens from your best colonies and introducing them in the colonies from which mediocre queens have been removed.

The time was, when a beekeeper could breed for honey-producing qualities alone and come nearly hitting it right, but with the prevalence of European foulbrood it is also very important to have a strain of bees which are in part or entirely resistant, and the comman black bee, or its cross, will not usually measure up to the pure Italian race. Unfortunately, the Carniolans and Caucasians have not been given thorough enough trial to determine their resistance.

Possibly you do not want to bother with rearing your own queens, but would rather leave it to the experienced breeder to give you queens from a good honey-producing stock. In any case, it will pay you to requeen wherever your stock is impure or where the queen has a colony very much below the average of your yard.

### Leave Enough Honey for Winter

Many beekeepers will be inclined, with the high price of honey, to extract very closely from their bees, either in the hopes that all colonies can gather enough to winter on during the late summer or fall, or in expectation of feeding later on a lot of sugar syrup for winter stores.

It is bad practice at any time to replace good white honey by sugar for wintering. It is doubly bad practice now, since the department has made a ruling whereby beekeepers are only to get half of the sugar they require, and care is to be taken that such beekeepers are not extracting honey and feeding sugar to take its place.

# On the Supply Maker's Trail No. 3---The Making of Comb Foundation

By Frank C. Pellett.

IT is an interesting journey to visit the various factories engaged in making bee supplies, for the purpose of getting a glimpse of the operations necessary to supply us with equipment. Most interesting of all is the making of foundation, for in foundation we give the bee something only partly done, which she must finish for herself. In nature, the honeybee never builds her own hive, but she always builds her own combs. She simply takes possession of any suitable shelter, whether it be a hollow tree or a vacant space under the roof or between the walls of a dwelling. Any place where her combs can be built in safety, will do. The making of hives is, then, rather a problem of providing for our own convenience in manipulation, than of saving of labor for the bees. Extractors, containers, smokers—everything else in the way of supplies, are made for the convenience of the beekeeper; foundation alone for lightening the labor of the bees.

In reviewing the wonderful development of beekeeping during the past half century, one is led to wonder whether any great improvement still remains to be brought forward. With the possible exception of the movable frame hive, no single invention has done as much for the beekeeper as foundation. Even yet, many beekeepers fail to appreciate fully the possibilities of its use. It is only after visiting the hundreds of apiaries where the bees are hived on empty frames, and permitted to build combs to suit their fancy, and comparing the results obtained with those secured by the expert beekeeper, as an inspector is compelled to do, that one comes fully to realize what foundation is worth to the honey producer. If the millions of neglected colonies of bees in America could be supplied with full sheets of foundation on which to build their combs, and with plenty of super room—even though no other attention was given aside from what they now receive—this one thing, alone, would add millions of pounds of honey to our product, and go a long way toward relieving the present acute shortage of sugar.

In reading the literature of a half century ago, one is impressed with the great care exercised to save every small piece of good worker comb. There was much cutting and fitting of combs in order to cut out patches of drone cells, and replace them with worker comb. It was a laborious process to secure a large number of good combs in those days and, at best, they bore small resemblance to the perfect combs which we find in a well regulated apiary of the present time. While there are a great variety of uses to which beeswax is put in the manufacture of various commercial produces, the beekeeper is his own best customer. It is probable that more wax is now purchased for the manufacture of comb foundation than for any other purpose.

It was a happy thought that suggested the impression of the cell base on a thin sheet of wax, but many years of experience were necessary to develop to perfection a machine which made the production of foundation, on a commercial scale, a possibility. In the May (1917) number of the American Bee Journal the editor told something of the history of this enterprise, so it is not necessary to repeat it here. However, we note that it was not until 1875 that the first printed wax was offered for sale in New York. It was several years later that a uniform product of good quality appeared in the market, and then began the slow process of educating the mass of beekeepers to the advantages of it. The well-informed beekeepers were quick to see the possibilities of its use, even at the high price for which it sold at the first. Like any new invention, its value had to be demonstrated before coming into general use. Now we rarely find a beekeeper of experience who would allow the bees to draw new combs without full sheets of foundation. The extra honey cost to the bees in building the combs amounts to more than the cost of the foundation, to say nothing of the advantage of the straight combs composed of worker cells, which are so important to the success of the beekeeper.

For a time it was common practice among beekeepers to buy a small mill and make their foundation at home. While it is quite possible to make a fairly good grade of foundation on these hand mills, it is slow and tedious work, and there are many imperfect sheets. The big mills now make it at so low a price that few beekeepers care to bother with a hand mill. Usually they ship their wax to a commercial establishment and have it made into foundation, at a low cost.

When foundation is made on a hand mill, it is necessary to dip a board or sheet of metal in the melted wax, then run the sheet of wax which is peeled from its surface between the rollers bearing the impression. At the foundation factories the wax is first sheeted by machinery, and made into rolls which are later run through the mills. The different operations are thus necessary to make the finished article, and each of these processes requires a different machine.

Sheeting the wax so that it can be fed through the mill in a long belt-like roll, is an ingenious operation. A large quantity of beeswax is melted, for nothing but pure beeswax enters into the manufacture of comb-foundation. This melted wax is held in a large trough, in connection with the sheeting machine. A water-cooled metal roll turns in the hot wax. Since it is cooler than the wax, it is instantly coated with it. It turns against a knife that peels off the coat of wax and forces it through a narrow slot. By the time it has passed through the slot it is cool enough to work nicely, like the taffy which we delighted to pull in our childhood days. Beeswax is very flexible at blood heat. The slot through which it is forced is long and narrow, thus bringing the wax through in the shape of a thin sheet, which is fastened to a wood roll that turns slowly and winds up the wax much like thread is wound on a spool. When about 30 pounds of the wax has been thus wound it is cut off and laid aside and a new spool started. The width of the sheet is adjusted to the size of finished foundation desired.

Our second picture shows the stockroom where a large quantity of sheeted wax is ready to go to the mill to receive the impression. The first picture shows the sheeting machines winding up the wax. Large quantities of wax are sheeted in advance of needs of the mill, since it can be easily stored and cared for in this form.

Sheeting the wax—The first stage of making foundation

The final process is rather simple. The roll of wax is threaded, so that it runs between two metal rolls as it unwinds. The rolls are cut to reproduce the impression of the base of the cells the size and shape of worker comb. As it leaves the rolls it is automatically cut into the proper lengths which the trade demands. As fast as the sheets are cut they are sorted and packed by young ladies, who become very expert. Paper is placed between the sheets of foundation to prevent them from sticking together or being otherwise damaged.

Beeswax is sensitive to changes in temperature. When the wax becomes warm it gets soft and the impression might easily be lost. In extreme cold it becomes so brittle that the sheets are easily broken. When packed in paper boxes with paper between the sheets of foundation, it is safe from all extremes of weather, is free from dust, and may be kept for years without damage.

Thirty Thousand pounds of Sheeted Wax in stock-room ready for the mill

Girls sorting and packing the foundation as it comes from the mill

## Glimpses of Southern Beekeeping---Boneset

By Jos. S. Scott

EVERYBODY knows about a surplus flow from alfalfa, clover, orange, basswood, etc., but does anyone know of a surplus flow from something unusual? Let's have something out of the ordinary ruts. I'll start the ball rolling with a flow from boneset.

I have been a beekeeper for seven or eight years and during that time there was boneset here, but I never noticed that the bees worked on it; why? Well, I think that the main reason was that my crop of saleable honey is over with by the 15th of May, when there is no more for that year except a light flow in July from summer titi and honeydew. This is left for them to winter on. As the bees can fly most any day and every day in the year, it is seldom that they have to stay in the hive over four days in the winter. So they winter well on the honeydew mixture.

This year there was a lot of velvet beans planted near my bees and I knew that they would get something in August from them, so I prepared to make some increase and requeen all of them during this flow. The flow was heavier and longer than I expected and these young queens went to laying like it was spring, and I never saw a larger lot of bees just right for gathering honey when the boneset began to bloom. I thought at the time that it was goldenrod, but was doubtful, as I have never seen any honey from goldenrod here; so after they had been on it for several days I followed them to the woods, and they were on boneset. They worked furiously for about ten days and gave me a surplus of at least 20 pounds from this, when we had a terrible wind and rain storm that kept up for at least ten days, at the end of which the boneset had been washed and beaten to pieces. I think that with a week's more flow they would have given me at least a super full of pure boneset honey.

I think the velvet bean flow, together with the young queens, put them in a position to gather this surplus. Heretofore they had dwindled down after July so that they were in no condition to gather a surplus, if there had been any. Was it that, or was it that this was a year that the boneset yielded? I am waiting anxiously for this fall to come to try it again.

The honey is of good body, a light amber color, with a very strong flavor. The honey when first sealed is so strong that one cannot eat it. After a time most of this strong taste disappears.

The picture in the September, 1917, issue of the American Bee Journal is a beautiful picture of the species of boneset that yielded me this honey.

Mt. Pleasant, Ala.

## The Maintenance of Colonies From the Close of the Honey Flow One Year Until Its Beginning the Next

By Geo. S. Demuth, Apicultural Assistant, Bureau of Entomology

THE business of honey production seemingly consists of caring for innumerable details, each of which, to be effective, must receive attention at exactly the right time. The beginner is always overwhelmed by this great mass of details, and even some who are more advanced in the work may occasionally lose their way temporarily in the struggle with many little things that make up beekeeping.

It is well, when struggling through a maze of details, to look up occasionally to get a more definite idea of the purpose of each of the details of our season's work, in order that we may weigh them and thus find their respective value as bearing upon the ultimate purpose of all our manipulations. When we can see each of these details in its relation to all the others and can trace out just what part each one plays toward the ultimate purpose of the beekeeper, we shall probably revise our conception of the relative importance of the many things we attempt to do in the apiary.

**Two phases of the work**—When examined with this in view, we find that each and every one of the multitude of things which we attempt to do during the year's work among the bees falls under one or the other of two great groups of activities. First we have one group of manipulations scattered throughout the greater portion of the year, each of which bears directly or indirectly upon a single purpose—to have, at the beginning of the main honey-flow, all colonies strong in energetic workers of a good strain.

Strong colonies at just the right time, however, do not alone insure the best results in honey that the location and season may afford, since strong colonies may divide themselves by swarming into two or more medium or weak colonies, thus defeating to a great extent the purpose toward which the beekeeper has directed his efforts during almost a year of preparation. Even if a division of the working force is prevented during this critical period—the honey-flow—other conditions, such as lack of suitable storage space for incoming nectar, crowded brood-chamber or insufficient ventilation, may cause the workers to loaf during the height of the honey-flow and in this way defeat the purpose of the beekeeper. The second great group of manipulations of the apiary, therefore, includes all those having for their purpose the providing of conditions tending to hold the gathering and storing instinct of the bees dominant and the prevention of a division of the working force of the colonies during the main honey-flow.

With a given equipment in a given locality during a given season, the resulting honey crop is determined by the degree of thoroughness and promptness with which these two things are done. Any manipulation which does not bear directly or remotely upon one or the other of these two purposes is something aside from honey-production, while those manipulations affecting to the greatest degree these two purposes are obviously of greatest importance.

Briefly stated, then, honey-production consists of doing two things—1st, providing workers of a good strain for the harvest, and, 2nd, using these workers to advantage during the harvest. The dividing line between these two phases is most clearly defined in localities having a single short honey-flow from which all, or practically all, the surplus honey is secured.

**The Preparation Period** It is my purpose to confine my remarks to the first of these two grand divisions of the work of honey-production—providing conditions which result in strong colonies at the beginning of the honey-flow. In doing so, I am not unmindful of the more tempting array of material in the other group which has to do with the greatest activity of the season, around which is centered the greater portion of our enthusiasm in beekeeping. Neither would I have you infer that these more interesting things are of secondary importance in honey-production. They form, in fact, the superstructure, and to most of us are the very essence of beekeeping. But the first group is the foundation, without which the superstructure cannot exist.

The tendency to neglect details of the lowly foundation while enjoying the structure above is a sufficient reason for a careful consideration of those factors which constitute the foundation of the honey crop.

**Interest—**You are well aware of the fact that our interest in the activities of the honeybee, especially during this one happy and busy month—the honey-flow—is the chief stimulus that impels us to do our part of the work and that the promptness and thoroughness with which we do it is largely determined by the intensity of this interest. The beekeeper, during a good honey-flow, when the bees are crowding him mercilessly, works from early morning until far into the night and knows no fatigue until he relaxes for his night's rest. Even then the night, instead of appealing to him as a time for rest, seems only to be another obstacle thrown in the way to prevent the doing of the many things in which he is so tremendously interested. At such times the beekeeper needs no other stimulation to better effort, for his intoxication is then complete. It is fortunate for the industry that beekeeping furnishes, at least at long intervals, such a tremendous stimulus, but as is the case with other powerful stimulants, the relapse between times is the dangerous corollary. At the close of the honey-flow, bees and beekeeper slow down at the same time and the intensity of interest at other seasons seems to be inversely as the square of the distance (in time units) from the honey-flow or peak of the season. This slump of interest in the bees that comes with the cessation of the honey-flow and the radical transfer of activities from the apiary to the honey-house and to the market, often works greatly to the disadvantage of the beekeeper. It sometimes even results in many colonies being permitted to approach the verge of starvation after the honey crop has been removed from the hives. In such colonies brood-rearing is suspended during the time when eggs should be laid to produce bees that make up the winter colony.

In addition to the seasonal fluctuation of the intensity of interest, there is the sagging of interest during poor seasons. After a series of poor and indifferent seasons, the beekeeper's interest may sag so low that when a good season occurs he is not prepared to take advantage of the opportunity. This is the basis for the saying among beekeepers that the best seasons usually "catch" them with the poorest preparation in number and strength of colonies.

Beekeeping is a peculiar industry in that the real business of the apiary, actual honey production, is confined to but a few weeks of the entire year, while the preparation for this supreme effort is scattered throughout the remaining ten or eleven months. In much of this preparation there is considerable latitude as to the time for any particular manipulation and the limit of time beyond which the manipulation is no longer effective is not always clearly defined. In addition to this, there is an annual shifting of these limits and some seasons are so favorable that the colonies need but little if any help from the beekeeper from the close of the main honey-flow of one season to the beginning of the next. In other words, the bees are so nearly able to take care of themselves during the entire non-producing portion of the year that there is danger that the beekeeper will depend too much upon their ability to do so.

The difference between the highly successful and the less successful beekeeper is probably not so much in the greater skill of the one as in the greater degree of interest sustained during the ten or eleven months of non-production for, if the interest is sustained, skill will be developed. The intense interest and enthusiasm of the beekeeper during the honey-flow cannot retrieve a situation lost during the period of preparation. If bees to gather and store the crop are not present in great numbers and ready for business when the honey-flow comes, no highly refined methods or complex apparatus can take their place. One of the great needs of the industry is, therefore, some stimulus to sustain the beekeeper's interest and thus induce him to systematize and simplify his manipulations during the eleven months of preparation.

**Three Periods in the Preparation**

It is my purpose to call attention to the few essential things to be done during the ten or eleven months of preparation for the honey-flow and to suggest the advisability of working out some system by which none of them shall be omitted. An analysis of the requirements of a colony of bees from the close of the honey-flow of one year until the beginning of the honey-flow of the next, on the basis of purpose on the part of the beekeeper, reveals three well defined periods.

1st. Production of Bees for the Winter Colony.—There is a date some time during the latter part of summer which marks the dividing line in brood-rearing between that brood, the resulting bees of which die before or early in winter, and that which results in bees that make up the winter colony. This date, of course, varies in various localities and with different seasons in the same locality, and is greatly influenced by conditions governing the amount of energy that the bees expend before winter begins. In order to have a colony for winter, therefore, there must be some brood-rearing after this date. Thousands of colonies are lost annually because brood-rearing was not sufficient to replace the wastage of bee-life during late summer and early fall. Since we cannot lose in winter colonies which we did not have the previous fall, it is an error to charge such losses to wintering. The workers that make up the colony at the beginning of the broodless period must be young and vigorous either in the sense of their age in days or in the amount of energy they have already expended, or in both.

The central idea, therefore, of this first course in the construction of the foundation for next season's honey crop is the production of bees whose lives are to span the winter broodless period.

2nd. Conservation of Energy — During the broodless period, the length of life of the worker bees must be greatly prolonged if the colony survives. Instead of the accepted six weeks' normal span of life under active conditions, the energy of the bees must be conserved that they will live six months or more. The existence of the colony during the winter in the North, therefore, is dependent upon conditions enabling the bees to live slowly enough to last until more favorable weather conditions permit their replacement with young. The so-called spring loss or spring dwindling is usually, properly speaking, a winter loss, and the weakened condition in the spring of colonies that were normal in strength the previous fall must be charged to winter loss. The central idea in that which we call wintering is the conservation of the energy of the bees.

3d. Increase in Population—Some time in the spring, while still anxious that bee energy shall not be wasted, the beekeeper desires that it shall be spent judiciously in brood-rearing. Here, as during the previous period, the instincts of the bees are in harmony with the desire of the beekeeper. From this time until the beginning of the honey-flow, the primary purpose of the beekeeper is a tremendous increase in the population of each colony, so that it shall reach the possible maximum about the time the honey-flow begins. If there is sufficient time previous to the honey-flow, as in localities where buckwheat furnishes the main crop, he may even increase the number of colonies, thus producing more workers for the harvest. This being the final lap in the preparation for the honey-flow, failures here are more noticeable, but not less destructive to profits, than are the failures during the other two periods.

### Three Fundamental Requirements

During each of these periods numerous environmental factors, such as weather conditions or presence or absence of minor honey-flows, exert influences favorable or unfavorable to the ultimate purpose of the beekeeper. In their battle against the many unfavorable conditions, there are but three fundamental requirements on the part of the bees—food, protection and room for expansion during periods of greater activity. In other words, if a normal colony of bees is never permitted to run short of stores, if it is at all times well protected, especially against extremes of temperature, and if brood-rearing is not at any time checked (when brood is desirable) by a lack of room, such a colony, barring accidents, will be prepared for the honey-flow in time to take advantage of it. Aside from providing and improving his equipment or controlling disease, the work of the beekeeper consists only in supplying any deficiency that may occur in food, protection and room. These are but primitive facts in beekeeping, but they are basic and are exactly the factors to the neglect of which may be traced most of the failure to have colonies at the beginning of instead at the close of the honey-flow. All the details of work, not concerned with equipment or disease, during this entire period, are concerned only with stores, protection or room for expansion of colony activity.

During the three periods into which the entire period of preparation is naturally divided, the emphasis on these fundamental requirements changes. Food, of course, is prominent as a requirement during each of the periods, with additional emphasis on quality during the winter; protection has its greatest emphasis during the winter and early spring, and room for the expansion of the brood-nest is primarily a spring requirement.

(To be concluded n September number)

---

# Small Helps to Canning Efficiency

By Mary G. Phillips

DOES your back ache, and are you tired all over after canning today? Then sit down in the most comfortable chair on the porch and cool off, while you review the situation, and reflect on the numbers of tired women, more than ever before in our history, who, like you, sit down at the end of the day with a sigh of relief that one more batch of jars is filled and put away. Everywhere, north, east, south, west, they pull the shoes from their weary feet at night and drop into bed spent, but happy. The wives of farmers have the longest and hardest days, probably, for in addition to doing the regular housework, they generally have several extra men to feed, help with the milking or feeding of chickens and stock, and are frequently handicapped by inconveniences like having to pump all the water, keep fire going in a wood stove, and in addition—the canning.

But it is not only the farmers' wives whose daily strength used in canning is adding to the military strength of our cause. There are the women of suburban towns who have been used to having a man for the heavier part of gardening, and a maid for the heavier housework. Now that men for day's work at gardening have virtually disappeared, and husbands are too busy with their part of the war work to be available, these women have spaded and planted the gardens themselves. With the kitchen help problem likewise acute, they are also doing their own housework and laundering. To women unused to these tasks the burden is heavy, but with the same grit as the farmers' wives are showing, and with the determination not to be outdone by the noble French and English women, they have made themselves equal to the task, and besides, add canning to the day's work. As for the women of the city, most of them who can leave home for even part of the day, are engaged in filling the vacant places left by men in business. But when their day at the office is done and the apartment is cleaned, and meals are over, these business women, like the rest of us, can!

Now, nine out of ten of the canning army have plunged into the extra work eagerly and willingly, but without first planning for it adequately. The cherries were ripe before you knew it, so, although you meant to have every bit of equipment necessary this year, when time is such a precious commodity, you did expect to finish housecleaning first, and get winter clothes packed away, and make yourself a couple of new morning dresses, but—the cherries hung red upon the trees and you dropped everything else in order not to lose one of them to the robins. It was nip and tuck, but with the children's help in picking and pitting (you did mean to buy a stoner this year), and by keeping at it day after day, you managed to salvage fifty quarts of potential pies, now safely placed on your top shelf. Then you turned again to finish the cleaning and the half-made dress, but—peas came on, and then you knew you were in for it, and the rest of the summer would see you with some canning to be done every day.

Well, it is too late now to go back to the beginning of the season, but there are still many vegetables and fruits to be preserved for winter, so let me ask you as you rest for a few minutes, to think of your equipment and the arrangement of your kitchen. "Disorganization is the main difficulty with housework," says one observing man, and he is partly right. We do not plan, systematize and simplify sufficiently. It is too late to reorganize your entire kitchen this season, but there may be many little steps toward kitchen efficiency which you could make tomorrow morning which will make your day's work shorter and lighter.

For instance, while canning, one is constantly washing her hands. Where does your hand towel hang—close beside the sink, or behind the door at the other side of the kitchen, so that you have to take a dozen steps to wipe your hands, and a dozen steps back to your work?

Have you but one sharp paring knife, generally referred to as "the" knife, which Johnny persists in borrowing to cut string, so that when you miss the knife just as you are about to prepare your vegetables, you have first to find Johnny in order to locate it? Two or three such small knives, involving an outlay of about 75 cents, save much wear and tear.

Again—have you a lifter for hot jars, or do you burn your fingers and lose your temper trying to lift the jars from scalding water with a spoon or cloth or what not? Such a lifter looks like two forks arranged scissors-fashion and costs 25 cents.

Once more—have you a wide-mouth funnel for filling jars (cost, 10 cents), or do you waste material and make work for yourself by attempting to fill jars without?

Do you follow the government bulletin advice and blanch your vegetables in cheese-cloth? If you have thought it too much bother to hunt up the cheese-cloth, or thought it "just as easy" some other way, try the cloth, just to see how great a time saver it is. Following the government bulletin is one sure way to succeed, and the woman who thinks she will save time by skipping what to her mind seems a trifling operation need not be surprised when she "has bad luck" with her canned peas or corn.

Have you a kitchen table on casters that you can easily pull close to the stove? If you have you know what a comfort it is to lift filled jars directly from the stove to the table with no steps between.

Have you thought carefully of your kitchen arrangements, or is the refrigerator, sink, stove, table shelves arrangement hit-or-miss? It is not a difficult matter to have the furniture so placed that you do not weave backward and forward over your kitchen floor a hundred times during one operation.

Do these seem like little things? So are minutes, and yet they are of great importance in this time of crisis. Some super-efficient housekeepers may say, "Why, of course I have all those time-savers, and do all those things!" but the majority of housekeepers skimp on kitchen utensils and do not think sufficiently to save themselves. We need the utmost strength of every woman of the nation and not an ounce of it should be wasted any more than food should be wasted.

Washington, D. C.

## Parthenogenesis Among the Solitary Bees

By John H. Lovell.

IN the May number of the American Bee Journal the editor gives a very interesting criticism of Fabre's views on parthenogenesis in the honeybee. It is the more surprising that Fabre should so positively deny Dzierzon's theory, since he himself has described parthenogenesis in Halictus, a genus of solitary bees. As among the bumblebees, the sexes mate in the fall, the males soon die, but the impregnated females hibernate during the winter. With the return of warm weather in the spring these prospective mothers dig burrows in the ground which are 5 or 6 inches in depth and have several short lateral branches, in each of which and in the lower end of the tunnel a cell is built. In each cell a ball of bee-bread, about the size of a pea or smaller, is stored and an egg is laid on this little mass of food. The composition of the bee-bread is essentially the same as that of the honeybee. From these eggs come only females; there are no males in the first generation. In like manner the queen bumblebee's eggs produce only workers in the spring. Each burrow of Halictus thus contains 8 or 10 females, sisters, since they are progeny of one mother. Beginning with the cell in which she was born, each female digs a new group of cells, connected with the main tunnel. Although there are then no males in existence, each of these virgin sisters provides her cell with a ball of bee-bread, and lays eggs, which by parthenogenesis give birth to both males and females—the second generation.

"To sum up," says Fabre, "judging by the three species that form the subject of my investigations, the Halicti have two generations a year, one in the spring, issuing from the mothers who have lived through the winter after being fecundated in the autumn, the other in the summer, the fruit of parthenogenesis, that is to say, of reproduction by the powers of the mother alone. Of the union of the two sexes, females alone are born; parthenogenesis gives birth at the same time to females and males."

If in Halictus unimpregnated females can lay eggs which give birth to both males and females, it is less surprising to learn that in some instances there are laying workers of the honeybee which can also produce both drones and females. There was a time in the history of the honeybee when there were no workers, but only males and females. The virgins of this period, as in Halictus, may have been able to lay eggs, which gave birth to both sexes. With the evolution of the worker the egg-laying power has been largely lost by this caste. The ability to produce females may have disappeared more completely than that of producing drones; but still manifest itself under special circumstances.

Since Fabre admits parthenogenesis in Halictus, why should he so unhesitatingly deny it in the case of the honeybee? As the editor of the American Bee Journal has shown, this was partly due to his natural dislike of the Germans, partly to his neglect to study the honeybee, which is a cause for some surprise, and partly, perhaps, to the fact that he himself discovered parthenogenesis in Halictus.

It is usually the egg, which develops into a new individual without fertilization, since it is larger and contains more food material; but theoretically there is no reason why the sperms may not also do so, and it is said that in certain of the brown sea-weeds (Ectocarpus) the sperms, which are unusually large, do develop into new plants of small size. Parthenogenesis can excite little surprise, indeed it might well be more common. The egg and the sperm are only specialized spores, and parthenogenesis seems to be the retention of the primitive power to multiply sexually by means of spores. A spore is a single cell which can produce a new individual. Many of the lower plants, as among the sea-weeds and fungi, multiply wholly by spores. The union of two spores is a sexual act. There are algae in which the larger spores grow directly into new plants, while the smaller unite, or conjugate, before developing into new individuals. There are also algae in which spores of the same size may produce new plants sometimes independently and sometimes by conjugation. The writer fully agrees with the editor of the Journal that parthenogenesis in the honeybee is a well-established fact.

Waldboro, Maine.

## "A Mountain of Honey"

By Lue Sites.

TOGETHER with an old prospector named Jabe Gates, I was running a tunnel into the side of the mountain above Hell Hole, upon the head waters of the American River, in Eldorado County, California, hunting for copper, as my partner had found copper floating down the mountain and had traced it up to an almost perpendicular ledge of rock about midway between the river and the peak of the mountain. We were about three thousand feet above the river and at least that far from the Red Cliffs, which were jagged rocks and cliffs at the summit of the mountain. So we concluded to run a tunnel straight into the heart of the hill and see if we could tap the copper vein, which Gates said must be deposited there. We worked three summers and had run the tunnel in about eight hundred feet (we could not work in the winter, for this is in the high Sierras, about seven or eight thousand feet elevation, and the snow piles mighty high), and blasting a good deal of the way, as the rock was hard in places, but soft in others.

About 1 o'clock one day we came back into the tunnel and the shots had bursted down the whole face of the drift, and as we commenced shoveling it away we could see a sticky mass that looked like molasses. As we shoveled and cleared out the mass we could see great slathers of comb. We took a bar and broke down the rock the full width of the tunnel and there we were with a solid mass of honey in the comb full width of our tunnel. It was as black as any black strap molasses you ever saw, and we could see that it was a regular cavern, as the wall was well defined.

We took a candle box and a mining pan full of the stuff to the cabin, and as we were low on sugar and didn't have any syrup on hand, we concluded to try some on pancakes for supper. We tried it out, and if you ever heard of two sick miners, we were the ones, for in less than half an hour later we were writhing in pretty hard pains, and it wasn't until nearly morning that we concluded to live.

Of course, it made us sore at the discovery we'd made. But in a few days we tackled the job again and ran an upper cut about fifty feet alongside the mass, intending to run ahead again over the lower tunnel, but this mass of honey and comb was just the same above as below. We cross-cut in two directions, but ran right into this cavern full of honey in both cross-cuts; besides, the work was getting on our nerves, being all sticky, and the smell wasn't the most pleasant. As I said, it was getting on in the fall and we were short of grub, so we determined to go out and get venison, as we needed meat, so we went up to the top of the mountain, and near the cliffs we got a four-pronger. We were right there at the Red Cliffs, so we concluded to explore a little. Strapping our guns to us, we climbed up through the cliffs. It was tedious climbing, as the rocks were sharp and jagged. Finally we got up, say about a hundred feet from the top of the main cliff, and all of a sudden we could see the bees flying around a sort of opening, and although it was well along in the afternoon, thousands of bees were flying in and out of this hole in the rock.

As we stood there watching, Jabe tossed a rock up toward the opening. It was the most foolish thing he could have done. Immediately the bees came for us, and in our haste to get down we ran right onto a couple of rattlesnakes, and while the rattlers didn't get us the bees did. When we finally got down to the ground again we both were a sorry mess, and the blooming bees were still after us.

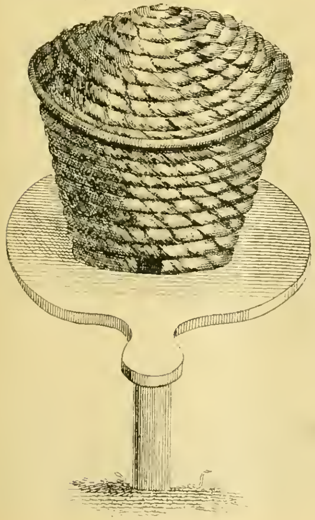
I should judge from the top of those cliffs to the mouth of our tunnel the distance was easy half a mile, and it was almost straight down. We figured it out that the bees had gone into that hole in the rock maybe a few hundred years before and went to the very bottom and built up from there, and, as near as Jabe could figure it, there must have been at least a million tons of honey deposited in the big cavern.

That winter a big snow slide came down and boulders bigger than a three-story house covered up the tunnel, cabin and all. Jabe died that winter, down in the city, and I was discouraged and broke. I went back the following summer to see about the claim, but finding the whole thing covered up, abandoned it for good.

San Francisco, Calif.

Vouched for by Mr. E. F. Lane.

Mr. Sites is evidently trying to get ahead of the stories told by our friend Mr. Baldensperger in a previous issue. Let us not stop at that, since honey has been recognized as the "ambrosia" or food of the gods, and since there is also a "milky way," is it not quite probable that some of the stars which we see in the heavens are entirely composed of honey? They say that there are no lawyers in heaven, but beekeepers are surely found there.—Editor.



The Huish Hive and Stand

## The Evolution of the Beehive

By the Editor.

"Editor Dadant: An extract from the diary of John Evelyn, who lived, during the times of King Charles I, O. Cromwell, Charles II and James II, at Sayes Court, near London, may interest your many readers, who have read articles on 'The Evolution of the Beehive.' Evelyn wrote, July 13, 1654:

"'We all dined at that most obliging and universally curious Dr. Wilkins's, at Wadham College, Oxford. He was the first who showed me the transparent apiaries, which he built like castles and palaces, and so ordered them one upon another as to take the honey without destroying the bees. These were adorned with a variety of dials, little statues, vanes, etc., and he was so abundantly civil, finding me pleased with them, to present me with one of the hives which he had empty, and which I afterwards had in my garden at Sayes Court, where it continued many years, and which his Majesty came on purpose to see and contemplate with much satisfaction.'

"From this brief account, we are justified in assuming there were movable frames in this observation hive. Evelyn throughout his life kept bees and took more than a passing interest in their work, and the pasture needed for their upkeep. It is interesting to note that Charles II, with other people of 'quality' could find sufficient interest in the bees to contemplate with much satisfaction their habits, on more than one occasion. WILLIAMS HUGH,

"Victoria B. C."

The reading of old bee books is fascinating, but above all things it shows us how circumspect one must be, not to make assertions which later may prove fallacious if not even ridiculous.

In order to discuss "the evolution of the beehive" it is necessary to search the old masters' works, read their arguments in favor of such or such a system and study their descriptions.

After reading Della Rocca (1790) and Huber (1814), I took up Huish (1815), a well posted English author and beekeeper. He was a great critic and took particular pains to ridicule the discoveries and teachings of Huber, denying Huber's assertion that the large number of drones which bees rear is intended to enable the queen to find one more readily in her wedding flight. Huber discovered that the queen went out to mate and mated "on the wing." He showed that a single mating was sufficient to fecundate her "for 2 years, at least." Huish wrote:

"How inconsistent with reason is such a system! and how contradictory to the daily experience of the attentive apiarian! It is an acknowledged fact that the queen never leaves the hive on any account whatsoever."

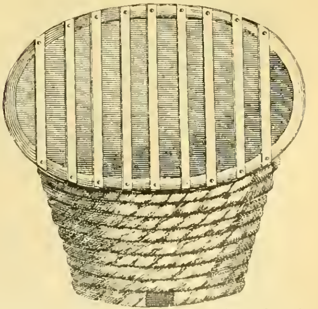
Huish also denied Huber's discovery that comb was made by digesting honey. He wrote:

"Mr. Huber's experiments appeared conclusive to the majority of foreign apiarians. * * * These discoveries can only excite a smile on the countenance of the chemist and the naturalist. * * * "

As Huish also criticises Della Rocca, one would hardly expect him to borrow from him. So my astonishment was great when I found passages of several pages translated, verbatim, from the latter's work without giving him credit. For instance, Della Rocca, speaking of the sting of the queen writes:

"The sting of the mother bee is bent, and it penetrates deeply, writes M. Ducarne. It is true that they rarely use it, but they do sometimes, and it makes a wound in proportion to its size. La Grenee says that he has held very active queens in his hands, for a long time without the honor of being stung. As to myself, I have experienced that honor, while holding a queen in my hand, after pressing her a little; in truth the sting was slight and not very painful."

This entire passage, as well as a page before and after was inserted by Huish, in his book, page 30, without giving even a hint that it was Della Rocca and not himself who had managed to be stung by a queen. For shame, Mr. Huish, was this ever noticed by some of your readers be-



The Huish Hive had only top-bars for the combs, and was called a movable-comb hive. The combs had to be cut loose from the walls at every inspection.

fore now? It is a little over 100 years since you wrote it.

I am not writing this just for the pleasure of putting on the witness stand a man who has probably been dead 50 years. It is the Huish hive which I propose to describe. It was in the shape of an inverted straw skep, but with "bars" on which the bees built their combs. The flaring shape of the hive enabled the apiarist to remove the combs readily after they had been cut away from the side walls. This was not Huish's original invention, for the Greek beekeepers were at that time using a similar hive.

My readers, accustomed as they are to our modern hives, will wonder at the possibility of doing any work with such top-bar hives. Yet the great Dzierzon, who was so very accurate, never used anything but top-bars, and at each visit had to separate the combs from the hive walls. Neither were his hives built flaring, but perpendicular, so the work of removing the combs for examination was undoubtedly a great task.

It was only after Dzierzon's discoveries that several apiarists devised movable frames. Neither were they as practical as the present hives. Debeauvoys made his frames to fit snugly in the hive, at first, and the bees glued them fast, so they were practically immovable. Berlepsch used spaces around them but did not make an open ceiling to the hive, so that the combs had to be drawn out from the rear, where a door permitted the removal. Hives of this kind are still in use in many parts of Germany.

All this ancient history enables us to see what a great step forward was made when Langstroth invented the movable frame with the bee space all around, below and above, with a removable top, so that the combs could be taken out without the use of doors, hinges, drawers, and other complicated contrivances.

The time had evidently come for the complete evolution of the bee hive, for very shortly after the Langstroth invention, similar hives were devised by different apiarists. In this country, A. F. Moon of Rome, Ga., made a claim to having devised a similar hive without having seen the Langstroth invention. In France, L'Abbe Sagot, a most excellent apiarist and a modest man, made an almost exact duplicate of the Langstroth hive without having even seen it.

## A Fuzz-Bearing Plant

I see in the May number, page 170 "Poisoned with Propolis," by "Missouri."

I think that his bees have gathered nectar, pollen or propolis from poisonous plants such as poison ivy, poison oak or fuzz-bearing plants such as goldenrod and fireweed, which grow in some years abundantly, are very irritable to the throat and nose and make one feel like having a cold or catarrh.

There are many other fuzz-bearing plants which are irritable and from which bees gather pollen and propolis. Enclosed is a so-called fireweed which grows abundantly this year and annoyed my throat.

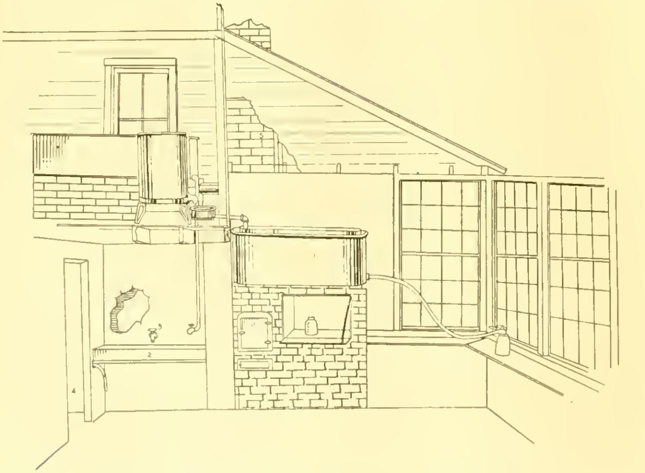
B. SCHUNCHEL.

The specimen enclosed, a very hairy, slim stem, with orange-colored flowers on a spike, was referred to Dr. Pammel, who reports as follows:

The plant is *Amsinckia intermedia.* I might say that this plant has been identified for me by W. A. Setchell of the University of California. The note from your correspondent is of interest. Many of the plants of the Borage family are excellent honey plants, for instance the common Borage *(Borago officinalis)*; some of the plants of this family do not, however, furnish nectar. Toxic substances are found in some members of this family, for instance, the European heliotrope, which has a volatile poisonous alkaloid, and another Borage, hound's tongue, contains a poisonous alkaloid.

I doubt very much whether the symptoms described by Mr. Schunchel can be attributed to pollen from this plant. I am inclined to think the irritation is caused by the peculiar hairs on the plant, as quite a number of the plants of this family are irritant and in some cases the symptoms are similar to those described by your correspondent.

Ames, Iowa.



Honey Heating Outfit of G. M. Ranum, Mt. Horeb, Wis.

The tank behind the extractor can is a combined uncapping box, capping melter and comb heater for warming combs when otherwise too cool for extracting. It sets on a brick fireplace and has water-jacket like honey-tank. Pipe leading to lower room, which is partly underground, has faucet to draw hot water into sink and for washing jars. Faucet 3 draws cold water from reservoir, represented by opening cut in stone wall. Reservoir contains soft water caught from roof of building, and a pitcher-spout pump in upper room draws from same for filling jacket in either tank. We want soft water for washing jars, and they are dried by sun heat in large windows. Pipe leading to honey-tank connects with strainer under faucet of extractor.

## Liquefying and Packing Honey

By G. M. Ranum.

Read at Wisconsin State Beekeepers' Convention, 1917.

THE apparatus I am about to describe is the outgrowth of a need felt for some convenient way of heating honey, not only for liquefying purposes but for rapidity in bottling and also for prevention of granulation.

We had long since concluded that the only proper way to sell extracted honey was in the liquid state, and had been making a practice of taking back from the stores any of our honey that had granulated, and replacing it with liquid honey. In fact, we insisted on this change, believing that a uniform appearing product would sell better and satisfy better than one that looks different each time you see it, as will honey when in various stages of granulation. Besides, we were tired of explaining the why and wherefore of honey getting white and hard, and never did quite fancy using a label with an apology attached.

This thing of keeping the stores supplied with liquid honey in nice condition made us no small amount of trouble. We tried various ways of heating the jars, and soon decided that dry heat was better than placing the jars in water, as by the latter plan one or more of the jars might crack and the contents leak out, making a bad mess of the whole thing. And the labels would always be damaged so as to necessitate relabeling We used to place the jars on the back of the kitchen stove, or in the oven, with the door partly open.

This plan worked all right for heating small quantities, but as the business grew the women folks began to grumble and complain.

My outfit now consists of a brick arch or fireplace built on the principle of a cookstove or kitchen range, with a flat, open top for supporting the honey tank directly over the fire and an oven made of heavy sheet iron, built in, with a flue running all around it.

This oven is used for heating honey in jars or cans at the same time that the honey in tank above is being heated.

The tank is double, i. e., one tank inside of another, with water between. The outer tank is of galvanized iron—an ordinary stock watering tank—while the inner one is made of vat tin, and costs considerably more.

The inner tank holds about 1,200 pounds of honey and the heating and bottling of this quantity makes a nice day's work, including rinsing of jars, putting on covers after filling, etc.

Of course, I have in mind two or three children or a couple of women to help with the job.

We use wood for fuel and each heating when tank is full requires less than a wheelbarrow load of wood. If the fire is started quite early in the morning we can begin filling about the middle of the afternoon.

The jars are rinsed in the morning, or a day or two previously, and dried by sun heat, using large windows for the purpose. We use soft water for washing and have it as hot as can be borne. This makes the jars clear and bright. The honey is heated to a temperature of 150 to 160 degrees and kept there for at least 3 or 4 hours. A longer time is still better, especially if the honey was granulated, and in this none should be drawn until the whole body is liquid.

The honey runs directly from extractor into tank and we do not worry about getting it out if it granulates while there. We expect to heat all of it anyway, whether granulated or not.

The oven holds about 8 dozen quart jars, in two tiers, or four 60-pound cans. The covers are loosened before heating and screwed down again when finished. Temperature of oven is regulated by leaving door partly open. We used second-hand fire brick for building the arch, but ordinary chimney brick would answer the purpose excepting, possibly, for the parts nearest the fire.

The rubber hose with cut-off can be swung around to fill a number of jars set in place on the table, but is not so convenient as we anticipated. Next season we expect to use a stationary pipe instead of the hose, with the jars placed on a small revolving table. As the table revolves the jars will pass under the cut-off, which the operator works with one hand while pushing the table along with the other. A second person will place the empty jars on the table and remove the filled ones as they come around. Other help can be used for putting on covers and labels.

Mt. Horeb, Wis.

---

## The Acacias

By W. A. Pryal.

If you have never lived in California, or in the native home of the golden-flowered acacias, you have no conception of what a beautiful sight one of these trees is when in full bloom during the winter months, especially in that portion of California about the bay of San Francisco. The fragrance of the flowers is delicious; there is hardly anything in the perfume line as genteelly sweet—and the pleasant odor permeates the atmosphere for quite a distance surrounding the trees. If delicious perfume is evidence of an abundance of nectar, then the acacias should be great nectar-secreting trees. But I am not prepared to give them such credit; in fact, my belief, based on a study of these trees extending over a quarter of a century, impels me to state that they are not rich in nectar, but I know that they are wonderful pollen-producers.

The acacia is a clean tree and fairly thrifty, though not a hardy tree in all portions of California. I have read that in the Eastern States they have to be treated as greenhouse plants, for the cold winters are too severe for them in the open. With us, many varieties grow to be tall trees, growing as high as 40 feet or more. Most of the varieties make stately trees, though some sorts are not symmetrical.

Acacia Mollissima

In and around Oakland *Acacia mollissima* has been planted for many years, as it is liked on account of its beautiful golden-yellow flowers, which are borne in great clusters or masses, and when the tree is in full infloresence it has the appearance of being a gigantic plume or boquet of feathery-like gold. The flowers are very fragrant and are much used for decorative purposes. Bees work in the feathery bloom the live-long day during all bright days in January and February. Sometimes it blooms here as early as the middle of December, and I have seen it in blossom in Santa Rosa, this State, as late as the end of March. In the same year here it had finished its season of infloresence fully a month sooner, and Santa Rosa is but 50 miles northwest of here.

The variety above mentioned is also styled *Acacia decurrens*, or black wattle, and is rated as one of the very best yielders of tanning bark known. From tests made by the University of California in 1898 it was ascertained that the California-grown bark yielded 13.5 per cent more tannin than did the Australian-grown bark. As there will always be a demand for high-quality tanning barks, and as the tree mentioned is of very easy culture and a rapid grower, it is probable that it has a great future before it in California. If planted extensively it will assure a valuable supply of pollen and, possibly, some nectar, for early breeding.

The wood is also of value to the cabinet-maker and the interior finisher. It is hard and works up with a fine grain and finish. The leaves of the tree have a fern-like appearance, as may be noticed by reference to the half-tone herewith presented.

*Acacia melanoxylon* is another tree much prized in Central California and, I believe, also to some extent in the southern portion of the State. It is largely planted as a street shade tree, and upon lawns upon large estates. It is more symmetrical than the variety first mentioned; it also grows more rapidly. In its report for 1897-8 the Agricultural Experiment Station of the aforesaid university says: "*Acacia melanoxylon*, the blackwood acacia, is a neat, straight-stemmed, symmetrical tree, of regular pyramidal outline; foliage very dense, dull green; flowers pale yellow, in the usual small globular heads. A desirable tree for sidewalk planting where compact growth and formal effect are desired. The tree is highly valued for many purposes. It is hard, finely grained, and takes a high polish. Even in the young state it makes an excellent firewood, about equal to oak."

This tree blooms later than *Acacia mollissima* and on that account is not so valuable for the apiarist, for by this time there are many other flowers yielding nectar and pollen.

I have noticed that poultry, especially chickens, are partial to the seeds of the last-mentioned variety; they hunt the seeds among the dead and fallen leaves and litter under the trees. I should judge that the trees yield large quantities of seed, as they are loaded with seed pods.

Besides these two acacias, there are several other varieties planted in this State, some of low growth and some fairly tall. The varieties here described and illustrated are the tallest we have—some specimens have already attained 60 or more feet in height.

Oakland, Calif.

---

# Virgil, the Poet of Beedom

By D. M. McDonald.

THIS "silver tongued" poet devoted his "Georgics" to affairs of husbandry and his fourth was devoted wholly to bees and beekeeping. He pictures an old man, possessed of a few acres of land and devoting himself to its culture and that of his bees equalling in his contentment of mind the wealth of kings. There, surrounded by his beehives, he attained perfect happiness, and led an ideal life. Placed, as his apiary was, on a gentle slope overlooking the Bay of Naples, he had on every side all that the heart of a beekeeper could desire. The site, the poet says, must be a well sheltered one where strong winds cannot gain access. A ledge was planted at the adjoining boundary, where willow blossoms were fed on by the busy bees; and, under the welcome shade the beeman often dreamed the midday hours away, lulled by murmuring music of the honey-gathering throng. It was considered important that the bee garden should not be open to the disturbing incursions of sheep or frisky kids, or heifers rudely brushing the "dew" away, or bruising the springing flowers. "Aerial honey," it must be remembered, was believed to be gathered mainly from the dews of heaven. The flowers were not forgotten—"Let gardens fragrant with saffron flowers invite the bees. Bring thyme, and let fruit-bearing trees and bushes be abundant. Plant lime trees and apple trees to yield their luxurious bloom in spring; also elms, blackthorns and planes. The soft osier, the hoary willow and the tough broom all counts, as well as arbutes, grey willow, cassia, the golden-hued crocus, and the deep-colored hyacinth." For coolness near the hives he advises that a palm or stately wild olive should be planted to overshade the entrance.

Good beekeeper that he was, he had an eye to the comfort of his industrious workers. "Have clear springs and green, damp moss or shallow rivulets coursing through the adjoining meadow. If the water is deep throw willow branches crosswise into the stream that the bees may drink in safety on the frequent bridges." When in spring the bees roam through the lawns and woods to reap the harvest of the bright-hued flowers, and to feast on green cassia, fragrant wild thyme and strong-scented savory, as well as countless other flowers, it was no less necessary that they should lightly sip the surface of the streams, hence these carefully prepared drinking fountains. The hives in this model apiary were of the simplest kind, he tells us, made of hollow bark or woven with pliant osier. "They should have narrow inlets to prevent the heat of summer to cause the honey to run and hinder the colds of winter to cause it to congeal. To keep out the cold the bees smear with wax (propolis) the small crevices in their 'caps.' This glue is more tenacious than birdlime or the pitch of Phrygian Ida." Bees often made a comfortable home underground in hollow pumice stones, and in the cavity of some hollow tree. Bees still, in the nearer east, inhabit such hives as the clefts of the rocks, some warm cave or the heart of some rotting tree.

Acacia Melanoxylon

He calls the colony inhabiting each of these hives a marvelous miniature republic. Each unit has a large mind in a little body. "They have high-spirited chiefs, and, of course, a king. Their allegiance to this sovereign is matched by no human race of men in the fealty they display toward their chief. The king gone, the bond of union is severed. He safeguards their labors and they look on him with respect and awe, while all attend him in crowds."

"Bees at the same time have home rights. They pass their lives under inviolable laws, they know the true meaning of native country and settled household goods. They toil in summer that they may have stores in winter. All work in summer, all feast alike in winter. So powerful is their love of flowers and so strong their ambition to collect honey that they voluntarily yield up their lives for the good of the community as a whole. When battling against adverse winds they pick little stones to act as ballast, and with these they steady themselves through the unsubstantial vapor."

Their internal government is a marvel of perfection. All is arranged for the greater good of the greater number. Some have charge of the food, some busy themselves in the fields, some store the honey, some collect "gum" from the bark of the trees, some build downwards the viscid wax, others lead out swarms, "the hope of the race." Others pack up and seal the honey-cells, some guard the outer entrance, taking it by turns, some receive the loads of those who return, others in marshalled bands drive away the drones, "an inactive horde." All have one rest from work, all have one common labor.

Wise bees, they are genuine weather prophets, and do not go far from their hives when rain is impending or trust the sky when east winds approach. They are models in prescience, in morality and in conduct. They neither indulge in conjugal intercourse nor relax and effeminate their bodies in love, nor bring forth their young with throes of travail. But they themselves gather their progeny with their mouths from leaves and fragrant herbs. They themselves provide a sovereign and tiny subjects, and repair and replenish their palaces and waxen realms.

Virgil went so far as to say that many thought that bees possessed Divine intelligence; that they had portions of "etherial thought," and moreover, that at the end each bee soared, still alive and conscious, each to count a star, and mount to lofty heaven. Several of the gods of ancient times were supposed to have been bees in some former state of being. At that early period the life of a bee was believed by some to last twenty or thirty years; our poet considered "The term of a short life awaits individual bees, yet the race remains imperishable—not more than seven years is passed by them."

He distinguished two different kinds of bees, and showed his preference for the one he characterized as the "better breed," because it was the race from whose combs you will press the most of sweet honey, and that of a better quality. As there were two kinds of bees, so he held there were two kinds of king. One is distinguished by his mien and conspicuous appearance. One king is disgustingly squalid, the other shines and sparkles with brightness, ablaze with gold.

The time of swarming was a joyful one. When swarms issue they float through the serene summer sky. Then, to attract them, sprinkle the juices prescribed, bruised balm and the herb of honey wort. Ring bells and beat around the cymbals of Mother Cybele (the Mother of the Gods), and they will settle themselves in the seats prepared. This seems to be a kind of self-hiving. A cure for undue swarming is given: "Just disable the wings of their chief and while they stay no bee will dare to leave the hive." Here is the origin of clipping the queen's wing. At swarming time, or at other periods, ancient bees were fond of engaging in mortal combat. Violent animosity and excitement arises between rival chiefs. Then hearts are panting for war. Sounds are heard like the trumpet and the bugle. Then they sharpen their stings on their proboscis. They meet in shock of battle, mingle in a whirling mass and fall headlong. Their chiefs wield mighty souls in their tiny bosoms. Then sprinkle over them a little dust and put the inferior leader to death, he being a superfluity.

Bees had many enemies in addition to rival bees. Keep the speckled lizard with scaly backs from the well-stocked hives. Of birds, the woodpecker is a determined enemy, and so is the swallow, for they devastate all around and in their mouths they bear away the bees while on the wing to be a sweet morsel to their merciless young. Cockroaches that shun the light, the fierce hornet, or the moths, a horrid crew, the spider with its nets around the doorway, are all noted enemies of bees. Above all, however, "fell disease," as in our day, entailed misfortune on bees and beekeepers. He gives elaborate directions for curing, but seems to rely on Schirach's remedy of first killing the bees, and, to cure, cleaning out and thoroughly disinfecting the hives.

In Virgil's time beekeepers appropriated the surplus honey twice a year—after the early and the latter flow. In carrying out this operation everything must be scrupulously clean. First wash your body, foment your mouth with draughts of water, and then with your hand thrust forward the persecuting smoke. If the stores are scant, or a severe winter is anticipated, he advises that they should be denuded of little honey, in order that their lives may be spared for another season of work and increase. This honey they looked on as the gift of the gods, which came down from the skies as a dew. The flowers gave glue, wax and "animable matter" from which bees were bred. The other means used for resurrecting bees and peopling hives where they died is told in the mythological tale of the shepherd, Aristaeus, but the legend is much older and was borrowed by Virgil from Egyptian literature.

The faultless poetry of the Fourth Georgic suffers both from translation and from being presented in prose, but as far as possible, the above has been given in the author's words.

Banffs, Scotland.

---

## The Metal Honeycomb

By Dr. A. F. Bonney.

THE writer lately received a set (10) of the aluminum honeycombs advertised by a California party, and put them to use. They were put singly into brood-chambers filled with brood and honey, and in "Demareeing" I put four in the center and filled out with drawn combs, as I much prefer to put my foundation above an excluder, for it is drawn out closer to the frames.

After an interval of six days I examined all of the nine I had put in, and in every case the bees had gone to work in them the same as in the wax combs. I could not see that they had discriminated at all.

These metal combs are made of very thin aluminum, almost a foil, and are as deep as the average finished comb. They will, of course, be moth-larva proof, and as they are strengthened with three wires of about 20-gauge, English, running from top to bottom bars, they should resist the centrifugal action of the extractor nicely. However, there is I think, one very serious objection; the metal is so thin and soft that the slightest blow spoils the opening of the cells, when it is necessary to spend time to restore the size, if not the shape of the opening.

This defect might be remedied by using a thicker metal, but this, at the present price of aluminum, would make the cost prohibitive. The present price, 55 cents at the factory, is almost too high to allow their use on a large scale.

My remedy would be to make the cells about one-fourth of an inch deep, of a reasonable heavy metal, dip them in wax when they are mounted in the frames, and allow the bees to draw them out, as they will, as I know from experiments made recently.

I am now working on some square, round and triangular cells, merely to see what the little animals will do with them.

Buck Grove, Iowa.

There is another possible objection to this metal in combs. It is the effect of temperature in our changeable climate. Beeswax is a non-conductor of heat and it stands the differences between the coldest and hottest weather without bad effect. Metals are good conductors of heat and cold, and metal in the hive combs may be the cause of still greater troubles than we now have in wintering.—Editor.

---

# BEE-KEEPING FOR WOMEN

Conducted by **Miss Emma M. Wilson**, Marengo, Ill.

### Swarm Prevention in War Time

Never before has it occurred—and let us hope that it may never occur again—that so many women have been obliged to take up the care of bees because the husband, brother, or son, the beekeeper of the family, has been called to become a soldier in this war for righteousness. In many cases, it would be a thing greatly desired if the bees could be allowed to stand still, just as they are, until the return of the beekeeper, so that he might again take up the work just where he left off. That may not be; but it might be to some extent approximated if it were not for that troublesome thing—swarming. Left to themselves the bees will swarm and swarm, the swarms going off and being lost, and the summer's harvest being lost with them.

Fortunately, we are not entirely helpless, and there is no reason why a woman, as well as a man, may not be able to overcome the swarm-devil and end the season with a maximum crop of honey.

All queens should be clipped, the two wings on one side being cut away. Not that a colony with a clipped queen will not swarm; it will swarm just as promptly as if the queen's wings were whole. But she cannot go off with the swarm, and the swarm, finding it has no queen, will return. The worst thing that can happen will be that the queen will be lost; and it is better to lose the queen than to lose both swarm and queen. And then there will be a week or so to provide against a swarm going off with the young queen that will emerge.

Even while having all queens clipped, we must proceed so as to reduce swarming to a negligible quantity, if not to prevent it altogether, without reference to whether the queen is clipped or not. One of the important things is to provide ventilation. Not merely what might be considered plenty, but abundance of it. Unless there is a deep bottom-board with a large entrance, it is not a bad plan to raise the hive perhaps three-fourths of an inch by putting a block under each corner. But no amount of ventilation under the hive will suffice, we must have ventilation above as well. Let the first super be slid forward so as to leave at the back end a crack of one-fourth to one-half an inch. Then if the supers be extracting-supers—and it is better they should be—let the second super be slid back upon the first, so as to make a ventilating space in front; the remaining supers being slid alternately back and forth, so as to "stagger" the pile, as it is called. For years we have had one or more piles thus staggered each year, no excluder being used, the queen generally occupying more or less of two stories, and in no case has a swarm issued.

Of late years it is coming to be considered that there is less swarming if the frames are spaced 1½ inches from center to center than where the usual 1⅜ spacing is used. The Dadants use that spacing, and it is thought that it may be an important factor in their being so remarkably free from swarming.

It is doubtful, however, that any advice can be more important than the advice to use the Demaree plan to prevent swarming. In a nutshell, the plan is to have one frame of brood with the queen in the lower story under an excluder, and the rest of the brood above the excluder. The lower story may be filled out with frames filled with foundation, or better still, with fully drawn combs. At the time the brood is put up, all queen-cells found on the combs should be killed, and in eight days all cells above the excluder should be killed, if any are started there.

Enough supers of extracting-combs may be put on at the start to make sure there shall be room enough for all the white-clover harvest, and this should be taken off and extracted as soon as there is any danger that the darker fall honey might be mixed with it.

In an exceptionally fine article by Miss Iona Fowls, in June Gleanings she tells just what the practice has been in the Fowls apiary for the past five years, giving the following diagram, which makes the matter very clear:

Old hive of brood with all *capped* queen-cells torn down.

*Empty* super of combs.

Super.

Super.

Queen-excluder.

1 comb with patch of young larvæ, queen and few bees; 9 frames drawn combs.

This she gives as the best plan for outapiaries, but there is no reason why it may not be used equally well in a home apiary. It has had a five-years' trial in the Fowls management. Miss Fowls says in explanation:

"This plan is: As soon as danger of swarming arises, every seven or eight days carefully examine the colonies, keep them always supplied with plenty of room, and destroying whatever queen-cells are found, providing they contain only eggs or young larvæ. When more advanced cells are found, place on the old stand a hive of drawn combs, one of which contains the queen, a few bees, and a few young larvæ. (If no combs are available, most of the frames may contain foundation; but there should always be at least three drawn combs, and a whole set, if possible). Above this place the queen-excluder; then two or three empty supers; and at the very top the hive of brood, tearing down only the capped queen-cells. At the end of seven or eight days, if no increase is desired, tear down all queen-cells again. If increase is wanted, simply place the upper story on a new stand and leave them to raise their own queen, or introduce a good queen or choice cell in a protector. It is not even necessary to remove any queen-cells; for when the new queen hatches, either she or the bees will attend to that. If one desires no increase, then the queen-cells may be destroyed and the brood distributed to other colonies or left to increase the original colony. That is the entire plan, and it has for years been used by many of the best beekeepers."

It may not be advisable in all cases to give as much super-room as the Fowls give; indeed, in some cases all that may be necessary is to have only the one-story of brood above the excluder, for that will allow for a harvest of one story of extracting-combs. In case, however, that increase is desired, and it is desired that cells may be started above the excluder, the higher the story of brood is raised above the queen, the more sure the bees will be to start queen-cells.

Denmark beekeepers in attendance at a short course in the apiary of Anna Sommer

### Denmark Beekeeping

In spite of the slow postage—It now takes two months—I have received every number of the American Bee Journal sent except the February one, which went down with the steamer.

I will send you a picture of my place and bees, it was taken last year during a bee course. The course lasted four days and was attended by 26. The man holding the frame is the teacher, beside him is an open hive (we usually have the roof hinged on; it is held in place by a roof-holder, so it does not tip over.) Behind the next hive you find me. I am holding a queen-excluder, of the kind we use between the frames. Our hives are long, holding 18 frames; when the time comes, the excluder is put down between the 10th and 11th frames and those behind it are used to store honey in. My experience is that the bees prefer to carry the honey up rather than behind; but it gives plenty of room. Last year's honey harvest was quite fair, in spite of everything drying out, as no rain fell from May to August.

I enjoyed to read, in the November issue of the Journal, about those three succesful women beekeepers. I am sure I am the only one on our island keeping bees for a living, and I don't know of any other in Denmark, either.

It may surprise you that I can make a living on 1,000 pounds surplus; but the prices of honey have just doubled. The price in the fall of 1914 was 20 to 22 cents; in the fall of 1917 it was 40 to 44 cents. All my honey was sold on the local market, and had I had 1,000 pounds more it would have been sold right here on the island. No honey is used for cooking—it is too dear;—it is used in place of butter on bread, or sugar or for health. Just now beekeepers are sending in their wants for sugar for the bees. Each beekeeper sends his request to the President of the Beekeepers' Association, of Bornholm (there are about 400), who sends them to the Board of the National Beekeepers' Association, of Denmark, who, in, turn, hands them to the Sugar Department at Copenhagen. No beekeeper, whether he is a member of the Association or not, can get sugar for his bees in any other way.

In March, 1917, the National Beekeepers' Association of Denmark arranged a course for teachers in beekeeping at the Agricultural High School at Copenhagen. The course lasted 11 days, and was attended by 26, of which I was one. There was a lecture on beekeeping (special bacteria pertaining to bee-diseases), entomology and botany.

I will send you a copy of the Danish Beekeepers' Times containing a picture from the course. The paper used to be issued twice a month, but will this year have only 14 numbers, on account of scarcity of paper. It has about 10,000 subscribers, which is almost equal to the number of members in the National Association, as every member gets the paper.

Wishing you prosperity, I hope and pray that God may speed the time when these fearful conditions that at present prevail in Europe may cease, thanking Him with full heart that our dear little Denmark has been saved from the direct sorrows and cruelties of the war.

ANNA SOMMER,
Lobbeck, Bornholm, Denmark.

# MISCELLANEOUS NEWS ITEMS

**Bee Statistics in the U. S.**—Bulletin No. 685, of the United States Department of Agriculture, gives all sorts of statistics on beekeeping, distribution of colonies in the different States, increase, wintering, yields, quality of honey, sources of honey and pollen, conditions and prospects.

We judge that this Bulletin is indispensable to the beekeeper. Like all statistics, it is probably incomplete, but, like all statistics, it will supply some information worth having and will lead to further efforts and greater accuracy. It can be obtained in the usual manner, by writing to the Bureau of Crop Estimates.

---

**West Virginia Beekeeping**—This is the title of a 52-page Bulletin, profusely illustrated, and published by the State Commissioner of Agriculture. The author is Charles A. Reese, Assistant Entomologist and Apiarist. The bulletin contains the most indispensable information for modern beekeeping. Every West Virginia beekeeper should secure it. It is published at Charleston by the Department of Agriculture.

---

**Wisconsin Association** — The Wisconsin beekeepers who are not members of their State Association should send their names to Mr. Edward Hassinger, of Greenville, Wis., so that they may see what their State is doing for the good of beekeeping. In fact, every beekeeper who cares to succeed should belong to his State Association. Wisconsin has arranged to send its members at regular intervals suggestions on the prices to be secured for honey. They base their information on crop reports and markets.

The State Association has voted $50 to make a display at the State Fair showing the uses of honey. Premiums to the amount of $449 are offered at the State Fair in addition to this.

Meetings are organized all over the State and the prospects for beekeeping are fine, But if you want your share of the information and of the success, you should put your shoulder to the wheel. Every State needs to do its share for the general success of the industry.

---

**Do Not Contract Too Closely**—I should like to refer you to the Official Bulletin of June 24, a copy of which can be consulted at your postoffice if you do not happen to have a copy. In this are given the regulations and restrictions for the use of sugar which are put in force for July 1. You will notice that under the less essential uses they class "Honey Manufacture." By this they undoubtedly mean the use of sugar for feeding bees. In view of these regulations it might be desirable to recommend that they do not extract too closely, so that they will be able to get their colonies through the winter with very little or no feeding of sugar syrup. It is impossible at this time to learn how much sugar will be available next fall, and these regulations and restrictions are changed from time to time so that it must not be assumed that the present regulations will apply next fall. In any event we must see to it that there is no tendency on the part of beekeepers to extract all of their honey to sell at high prices and then expect the Government to furnish them with sugar at a low price to take the place of honey which they have sold.

E. F. PHILLIPS,
Washington, D. C.

---

**Will It Work?**—If putting a valuable queen in a hive above a strong colony, for heat, with emerging brood is a good plan, and there is, of course, no safer way of introduction, will it not be equally good to put a ripe cell in the same location with, say five or more frames of emerging brood, let it stay a few days, then remove to a new location?

I am trying it out, but thinking that other amateurs may be as anxious for more colonies of bees as I am, I wish to get to the attention of beekeepers while yet there is time to start new colonies. A. F. BONNEY.

(This, of course, would have to be over a queen-excluder, if there is a queen in the hive. If there is no queen, the introduced queen or cell will be as safe below.—Editor.)

---

**Honey Vinegar**—I sent you under separate cover a sample of honey vinegar. This was made about a year ago, following directions from the A, B, C Bee-book, and also from the articles in the American Bee Journal, by Mr. C. P. Dadant. It is stored on the second floor. Please state how I can make it more sour. Or, in other words, how can I improve it?

WISCONSIN.

Either of two things is the cause for the failure of fermentation. The liquid may be too sweet. In that case it would require more water.

However, I am under the impression that the trouble lies in lack of fermentation. Put your vinegar into a boiler and bring it to the boiling point. This will kill noxious germs which may have developed and might prevent fermentation and cause the vinegar to become ropy. Then let it cool; add about as much water as you may have evaporated in the boiling and put in about a gallon of fruit juice. Keep the bung off and put it in a warm place. If you have no fruit juice, wait till the grapes are ripe and use unboiled grape juice. To keep insects out of the keg, use a small sand-bag on the bung. But be sure and keep the keg where it will be warm.—Editor.

---

**Texas Inspector to Kansas**—W. E. Jackson, until recently in charge of bee inspection work for the State of Texas, under F. B. Paddock, the State Entomologist, has recently been called to the colors. Mr. Jackson reported for duty on May 31, and has been assigned to the medical laboratory at Ft. Leavenworth, Kans., for work in bacteriology. Mr. Jackson's place under Mr. Paddock has not yet been filled.

---

**Nebraska Meeting**—The Nebraska Beekeepers' Association will hold a meeting at the Nebraska State Fair for the purpose of changing and adding rules to the by-laws of the association.

The meeting will start at 9 o'clock in the morning of Thursday of the fair week, which is the first week in September.

Frank C. Pellett is expected to be present at this meeting and also several more good authorities. Some very important matters will come up and it is the business of every Nebraska beekeeper to be present.

O. E. TIMM, Secy.,
Bennington, Nebr.

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

Honey arrivals since last report:

**Medina, O.**—177,007 pounds from California, 120 pounds from Ohio, 2,160 pounds from Arizona, 45,915 pounds from Texas.

Shipping point information, Saturday, June 29:

**Los Angeles, Calif.** — Very light shipments. Demand slow, on account of exporters having difficulty in securing ship space and delivery at terminals; steady feeling. Few large growers holding for higher prices, dealers buying to fill orders only. Cash to producer on farm: Extracted white orange, 20-21c per pound, mostly 20c; light amber, few sales at 16-18c per pound; alfalfa amber, supplies very light, but increasing, mostly 15-16c per pound. White comb, too few sales to establish market; few sales reported at $4.50-6.00 per 24-section case. Beeswax, demand slow, weaker tendency, mostly 34c per pound.

**San Francisco, Calif.**—Demand and movement moderate. Growers holding for higher prices, eastern buyers holding off on account of high prices. Demand good for export, but uncertainty of securing steamer space and British Government Food Regulations retarding movement. Prices to growers f. o. b. shipping point: Extracted orange 20-20½c, sage white 18-19c, light amber 16-18c, alfalfa 15½-17c. Beeswax, 33-38c per pound.

### Telegraphic Reports from Today's Markets

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report represent the prices at which the "wholesale carlot receivers" sell to the "jobbers.)"

**Note.**—Arrivals include receipts during preceding two weeks. Prices represent current quotations.

**Chicago**—Supplies insufficient to quote.

**Cincinnati**—3,869 pounds Florida extracted arrived. Supplies light. Demand light. No sales reported. Beeswax: Demand moderate. Average, yellow, 35-38c per pound.

**Denver**—No carlot arrivals. Comb and extracted, supplies exhausted. Beeswax: Receipts and supplies very light, steady feeling. Price to producers, 35-37½c per pound.

**Kansas City**—Receipts very light. Demand light, movement moderate, firm feeling, few sales. All sales in small lots. Sales to jobbers: Native Missouri, quality and condition generally good; 24-comb flat cases, No. 1, light, $7.50. Beeswax: No arrivals. No sales reported.

**Minneapolis**—No arrivals. Supplies very light. Demand slow, weaker tendency. Minnesota and Wisconsin: Comb, white fancy, 24-section cases, old supplies cleaning up $4.75-5.50. Extracted, white fancy 60-lb. pails, 20-21c per pound.

The late C. Becker

**St. Paul**—No arrivals. Supplies very light. Demand slow, market fair. Minnesota and Wisconsin: Comb, white fancy, 24-section cases, few sales; all sales in small lots, mostly $6; special brands, cartons, $6.75; extracted supplies exhausted. Beeswax: No sales reported.

**New York**—Arrivals: 108 barrels West Indies, 82 barrels, Porto Rico, 10 tierces Porto Rico, 130 barrels Florida, 1 car from Cincinnati. Receipts moderate. Demand and movement moderate; market quiet. Extracted, per gallon, Porto Rican $2.25-2.50; Floridas, $2.16-3.00, according to quality, mostly $2.25-2.40. Beeswax: Arrivals, 28 barrels West Indies, 345 bags Cuba, 37 bags South America, 90 bags Porto Rico. Receipts increasing. Demand moderate, market steady. Yellow, 40-42c per pound; dark, 39-41c per pound.

**St. Louis**—No arrivals. Supplies very light. No sales.

**Philadelphia** — Approximately 120 barrels domestic southern arrived. Demand good; strong feeling; very few sales. Buckwheat, old crop, 23c per pound; southern domestic, amber 25c per pound.

---

**Death of Chas. Becker**—We regret to announce the death of Mr. Chas. Becker, of Pleasant Plain, Ill., one of Illinois' best-known beekeepers, and for many years Treasurer of the Illinois State Beekeepers' Association.

Mr. Becker has also been an exhibitor at the Illinois State Fair for many years and never failed to take his portion, at least, of the premiums offered.

The sympathy of all Illinois beekeepers and others who knew him goes to his family.

Beedom
Boiled Down

### Bottom Starters for Extracting Frames

Beekeepers have found a great advantage in the use of bottom starters in sections. There are more advantages in using bottom starters in frames. With frames containing foundation placed over the broodnest, I find that the bees begin to build from the bottom rather than from the top, expanding the cluster instead of starting a new one. By the use of bottom starters one gets better combs with the frames almost perfectly filled. With the combs attached firmly to the bottom bar the queen is easier to find, as there are not so many convenient hiding places. I have found that nine and a half supers of combs built with bottom starters hold as much honey as ten supers built in the usual way. It is equally desirable to use bottom starters in brood frames or extracting frames to insure good combs.

C. E. FOWLER,
Hammonton, N. J.

---

### Transferring From Box Hives

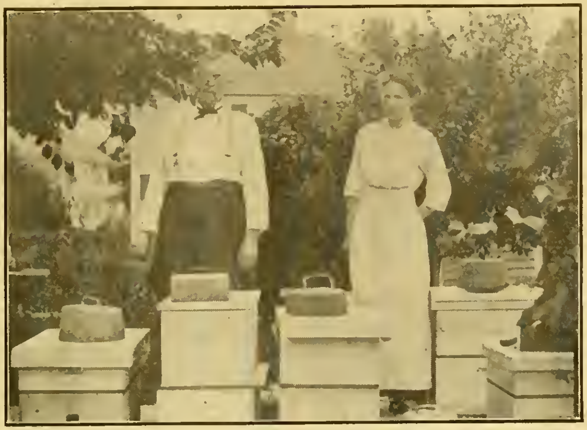
To transfer bees from a box-hive, take a large box that can be turned over the box-hive, cut a hole through the bottom 4x5 inches. Nail strips on the outside of the bottom to serve as a bottom for a regular hive. Make an opening in the top of the box-hive to be transferred, then turn the transfer box over the box-hive and have the 4x5 opening over the hole in the top of the box-hive. Shovel dirt around the bottom and stop all cracks or knot holes, so that all bees must come up through the top of the box-hive. Now set a regular hive with a frame of brood and empty combs on the strips nailed on the transfer box. This box now becomes the bottom board for your regular hive. The bees will move up into the frame hive, and I have had them carry up every drop of honey, making the melting of the combs in the box-hive an easy job.

F. A. DUNHAM,
Walla Walla, Wash.

### Weights for Hive Covers

For preventing covers from being blown off by the wind it is much more convenient to have weights that can be lifted by one hand. I take a square box three or four inches deep, without top or bottom, or a fish kit without top or bottom, and fill with cement, same as is used for sidewalks. Before filling, place the receptacle on a loose board. For handles use any old piece of iron that is long enough to bend in shape. Imbed handle in cement as soon as mould is filled. These are very handy and beat a brick or flat rock a mile.

DR. E. W. PARKER,
Sutherland, Iowa.


Cement Weights for Hive-cover in the apiary of Dr. and Mrs. E. W. Parker at Sutherland, Iowa

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
**DR. C. C. MILLER, MARENGO, ILL.**
**He does NOT answer bee-keeping questions by mail.**

### Breeding

1. Why is it that I can't get an Italian queen to stay with me? I have ordered about a dozen queens and have not had any of them to stay; they would stay from a month to six weeks and disappear. I do not know where they go: do you? I guess they are hurt in the mail.

2. Can you tell me the name and address of a reliable queen-breeder in or close to my state?

3. Does an Italian queen raise pure Italian drones when her bees are crossed?

4. How do you get the queen to lay in drone cells that you want to rear drones from?

5. Does sweet clover bloom every year after it commences blooming?

6. Don't you think it would pay to order untested queens and select a breeder.

ARKANSAS.

ANSWERS.—1. I don't know, and have little data to base a guess upon. A queen might be injured in the mail, but in that case she would hardly continue on duty a month or more. If it were in swarming time I should say she might abscond with a swarm. Bees sometimes have queer streaks, and it is possible that it just happened that a number of queens went wrong with you, and that the very next will go all right.

2. Those who advertise in this journal are considered reliable, and among them you ought to be able to find one not very far away. For that matter, distance does not make much difference, and queens from any part of the country ought to reach you safely

3. Yes, if a queen of pure stock meets a black drone, her drones will be pure Italian, and her workers hybrid.

4. Let them have some drone-comb near the center of the brood-nest.

5. No, it blooms but once. The first year it grows without blooming, the next year it blooms, and then dies, root and branch.

5. Yes.

### Queen Introduction

I wonder how you cage your queens when treating for foulbrood or otherwise.

This spring I brought in a couple of my best colonies to feed up and treat early for foulbrood by caging the queen 10 days or more so as to have something free to work with in rearing cells that I might need. I caged them in an ordinary mailing cage with no attendants or candy, and placed them under the quilt and put on a slow feeder. In 8 days I pulled out all the cells and in a few more days I killed everything that looked like a cell, and then I made sure of releasing them safe.

The queens were well taken care of during confinement. I waited until after dark, when all was quiet, and to make matters doubly safe I poured them on in thick honey. Results: In one case the queen was rolled out the next morning, in the other it was a few days, and she, too, came out at the front dead.

I have since caged some with excluder zinc over the cage and released with better luck, in fact found them laying the next day.

I find a good per cent of queens caged 21 day in the way I mention are let starve by the bees. I notice some if caged with zinc do not start cells.

KANSAS.

ANSWER.—I am puzzled to know why you should have had such misfortune, and the only clue I can see toward even a guess lies in your statement, "I find a good per cent of queens caged 21 days in the way I mention are let starve by the bees." That "good per cent" makes it seem possible that you are in the habit of caging queens something like 21 days, and that that was the trouble in the cases you mention. I don't know just how long bees will endure a queen that is a slacker, but if she fails to supply the cells with eggs at a proper season I am pretty certain they will cease to have patience with her after a certain time. That time may have elapsed, and then as soon as you let the queen out of the cage they attacked her.

As to the way I have caged, I have had no particular way, and have taken no special precaution. In a few cases I have caged them in the way you describe, in a mailing cage, but generally in the simplest kind of a cage made of wire-cloth, putting the cage between the combs or thrusting it into the entrance of the hive. I have thus caged them hundreds of times, and do not recall a single failure. But if I should allow a queen to be caged much more than ten days (and I'm not sure that even ten days' time is needed in treating European foulbrood), I should hardly look for such constant success.

That's the only guess I can make, and if that guess is right, of course the remedy lies in shorter caging.

### Adel and Caucasian Bees

Where does the Caucasian bee come from? Where does the Adel bee come from? I asked another bee journal and they said from Caucasia. In Dr. Miller's "Thousand Answers" it says they were a strain of Italians, and the queen breeder from whom I purchased some said they were a strain of Carniolans. The bees are different in color from the Italians; they vary from black to 5-banded. The queens are either black or golden. Some colonies are good and others are very poor.

ANSWER.—The word "Adel" is a German word meaning nobility, and was used by an American beekeeper as a sort of fancy name for his strain of bees, just as you might entitle your bees "best-of-all" bees.

No doubt Caucasian bees come from Caucasus, as indicated by the name. Please say where in Dr. Miller's "Thousand Answers" you find it said that Caucasians are a strain of Italians. I find nothing of the kind at page 39, where Caucasians are considered.

Reports vary as to the character of Caucasians, but I don't remember that anyone heretofore has reported such a variation in color. Are you sure yours are pure?

### Cell Protectors

1. I am having this season quite a number of colonies that look prosperous, but get just one or two queen-cells, especially one I examined yesterday was in appearance equal to the best; has brood and eggs, not a single egg in cup did I notice; but there was one well-developed capped queen-cell. How would you have treated that colony?

2. I noticed in one of the bee journals lately that someone gave queen-cells in protectors. I have a few of them, but have been unable to see that they amounted to anything, at least in this way. I practice considerably to give queen-cells, but rarely otherwise than giving the colony apparently needing one the whole frame as it is, with the queen-cell on it. If it has over one, leave the best only. What, then, is the use of a protector? Or, do you think that colonies do not take well to queen-cells as just stated, if they come from other colonies—do such need protection?

3. One of my very best colonies I found yesterday with a big lot of eggs in cups in two frames of the upper body, but none at all in the lower body. I hope to keep this colony from swarming until queens ordered arrive, whereupon I expect to divide. What do you do under that circumstance—that is, when there are a number of cups with eggs, but nothing further, and you would like to have swarming deferred with the purpose of thwarting it later on? What is the significance to you of eggs in cups?

ANSWERS.—1. Likely I would have left it to its own devices, in the belief that the bees were superseding their queen. Even when a queen seems all right, the bees appear to know that she will soon fail, and that single cell points plainly to superseding.

2. I hardly think bees discriminate against a cell from another colony. It is unnecessary to use a protector where not needed; but if you dequeen a colony and at the same time give it a cell, a protector is needed.

3. I would kill the eggs, and again destroy all cells a week later. Cells with eggs may signify either swarming or superseding.

### Raising Queens—Bee-Tree

1. If I take a couple of frames of brood containing eggs three days old or younger and some bees without a queen and put them in another hive without a queen or even a queen-cell, will the bees make a queen-cell out of a worker-cell and rear themselves a queen?

2. What do the bees get to make the comb of?

3. If I find a bee-tree on another man's land have I a right to cut it without his authority or knowledge. What would be the best thing to do?

Answers.—1. They might rear a queen, but hardly one of great value. To get a good queen your cells should be reared in a strong colony and left there till sealed, or, still better, until within a day of hatching.

2. Honey and pollen.

3. The best thing, indeed the only thing, is to obtain permission of the owner of the tree.

### Queen-Cells—Increase

1. Can I make queen-cell bases myself? If so, how should I proceed?

2. How long can a queen be kept in a nursery in the hive before mating?

3. One of my colonies is making two queen-cells on the combs. Now I have a plan of making increase something like this: When the swarm issues I intend to take the brood out, divide it in two parts, 3 combs and 1 comb with queen-cell on, put each part in an 8-frame hive, then put the swarm back on the old stand on two of the combs of brood still left. It is a 10-frame hive. I would fill the rest of the space in each of the three hives with full sheet of foundation, and the supers of the parent colony on the swarm. The swarm would probably be due about the last part of June. That would give each of the three a chance to build up for the gathering of fireweed, which comes here in August. That would give me 66 per cent increase and some surplus. Now, do you think this will work? I think that one of the queens might emerge before the swarm issues, or that the 2 queenless but queen-cell parts upon the mating of the emerged queen swarm out with her.

What is your opinion about this? I expect them to build up on clover. We have practically no rain in July; that would help in pushing them along. Adverse weather conditions retarded brood-rearing in latter May.

Answers.—1. Yes; any straight bar may be fastened in the frame toward the upper part, and to this the cells may be attached.

2. I don't know; but I don't believe it is well to keep her more than a week or so; in fact, the shorter the time the better.

3. Your scheme seems all right in the main, but aren't you a little astray in counting that an increase of two from one would be 66 per cent increase? If you start with one colony and have an increase of one, that would be 100 per cent increase; if you have an increase of two wouldn't that be 200 per cent increase? In the hive with the queen on the old stand you will do well to have only one frame of brood instead of two.

Normally, neither of the young queens will emerge before the swarm issues, but it is not unusual for some of the bees to swarm out with the virgin on her mating trip.

### Super Ventilation

1. After hiving a swarm of bees, where should the supers be placed on the new hives?

2. Please state the best method for ventilating hives in hot weather. ILLINOIS.

Answers.—1. If you have a queen-excluder on the hive the supers can be put on at once; if not, you should wait until a brood nest has become established in the brood-chamber, for fear the queen will go up and start a brood-nest above. You will generally be safe if you wait about 3 days.

2. The best way to ventilate depends somewhat on the construction of the hive. If the bottom is not fastened to the hive, it may be raised by a block under each corner. Some have a bottom-board 2 inches deep, and to prevent the bees building down into it there is a bottom-rack which allows free ventilation. There may also be ventilation above the brood-chamber. The first super may be shoved forward so as to leave at the back end a space of a fourth inch or a half inch between the hive and super. If extracting-supers are used they may be staggered, the second super shoved back so as to make ventilation in front, the third shoved forward to make ventilation at the back end. The first section-super may be shoved forward as already mentioned, but there can be no ventilation between any two section-supers. There may, however, be ventilation at the top by means of a cover so constructed as to allow the air to pass up through the center of the super.

### Splints or Extra Wires

Would the No. 30 wire used as you use your wooden splints and imbedded by electricity be of much advantage in a frame already wired with four wires? We have some trouble with foundation buckling between the wires, and the combs sometimes break when new when we extract them. If the wires will be of advantage, how many would you use? Will they do as well as the wooden splints?
COLORADO.

Answer.—Yes; I've used five wires vertically, and it works well. I like the splints better, but you may not.

### Miscellaneous

1. Is early spring or late fall the best time to unite bees in modern hives?

2. Are hybrids more cross than blacks or Italians?

3. Which are best in your climate, the standard 8 or 10-frame hive?

4. Was last winter very severe in your apiary?

5. What do you use to pack your hives with for winter?

6. How many colonies have you?

7. Do you advocate the use of full sheets of foundation in hives?

8. Do you use a veil while handling bees?

9. In the way of removing queen-cells to prevent swarming, should it be every 8 or 10 days?

10. What do you consider the best method of preventing bees from swarming?

11. How is the honey flow in your location this spring?

12. From what plant in the first harvest does your main honey flow come from?
OHIO.

Answers.—1. Generally it is better to unite in the fall. The united colony will winter better than a weak colony left without uniting. But early fall is better than late fall.

2. Yes.

3. 10-frame.

4. No; the winter doesn't make any difference with my bees, because they are kept in cellar.

5. In the cellar they need no packing.

6. Have had up to 400. At present only a tenth of that.

7. Yes; you lose money by using less.

8. Always have one on my hat, and generally pulled down.

9. Ten days will do all right, and even longer; but for fear of bad weather or some other hindrance some prefer to make the time 8 or 9 days.

10. I doubt if there's anything better than the Demaree plan.

11. Not very good; too much cool weather.

12. White clover.

### Flax a Good Honey Plant

1. Is flax considered a good honey plant? There will be quite a little flax raised around here this year. A few years ago we saw a

2. What do you consider the best months for honey in northwest Iowa? IOWA.

Answers.—1. I have never heard of flax being much of a honey plant, but if you saw a field of flax just alive with bees you may count that it is some importance, for bees don't fool away their time where they can get nothing.

2. Probably June some years, and July others.

### Swarm Prevention With Queen Excluder

On May 30 I found one No. 23 colony building 7 queen-cells sealed. I found and caged the queen, destroyed all queen-cells, removed the hive from its stand and put in its place a hive containing four frames of foundation. Upon this hive was put a queen-excluder and over the excluder the old hive with its brood and bees, and over this two supers, and over the supers the cover. Then the queen was run in at the entrance of the lower hive and the colony was left for seven and one-half days. There was no ventilation at top and the entrance was measured ⅞x12⅜. On June 7 I took away the lower story with its excluder and put back the queen in the old hive, which was left on the stand. I found two frames were occupied by the queen. On June 14 the same colony swarmed and the swarm was lost,

WAR SAVINGS STAMPS
DELIVERED TO YOUR HOME

Tear Out—Fill In—Hand Letter-Carrier—or Mail to Post Office

TO THE LOCAL POSTMASTER:—Kindly have letter-carrier deliver to me on ______________ (Date) for which I will pay on delivery:

______ (State number wanted) $5. U. S. WAR-SAVINGS STAMPS at $______ (See prices below) each

______ (State number wanted) 25c. U. S. THRIFT STAMPS at 25c. each.

Name ______________________

Address ______________________

W.S.S.
WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

W. S. S. COST DURING 1918

| | | | | | |
|---|---|---|---|---|---|
| April | $4.15 | July | $4.18 | Oct. | $4.21 |
| May | 4.16 | Aug. | 4.19 | Nov. | 4.22 |
| June | 4.17 | Sept. | 4.20 | Dec. | 4.23 |

W. S. S. WORTH $5.00 JANUARY 1. 1923

so I was surprised. After the swarming I opened the hive and found a new queen hatched out and no queen cells. I think the virgin was born on June 14 or 15. The colony was located in a good shade, where trees stand. One super was half full. Can you tell me what caused the swarm? Do you clip the queen's wings before using excluder plans?

INDIANA.

Answer.—When you put up that brood, you killed the queen-cells, but there was brood in all stages, from which, no doubt, the bees started cells. When you gave back the brood to the queen you probably destroyed cells, but one might easily escape you, and that one would be enough to cause the swarming.

You returned the brood in 7½ days. Sometimes that's all right, and sometimes it isn't. Ten days is safer.

### Swarming—8-Frame Hives Vs. 10-Frame Hives

1. What, in your opinion, was the matter with my bees? One evening about 6 o'clock what seemed to be a small swarm issued and, after circling around my few stands, they tried to settle on the limb of a peach tree. Just then a rain storm came and the bees tried to enter into several of my hives, but were killed off. Yesterday morning about 7 o'clock the same thing happened again, only this time only one of my hives was attacked and lots of bees killed. As I thought the bees were robbing, I piled grass in front of this hive and sprinkled water on it. Do you think the bees swarmed, or was it a case of robbing? It certainly was an unusual time of day for them to swarm.

2. I am running for extracted honey and am using the shallow extracting super 5⅝ in deep, and a week ago I noticed drone brood in the lower edge of the frame in the supers next to the hive body. But now I also find worker-brood in supers. Would you advise me to use queen-excluders?

3. I am using 8-frame hives of my own make, but will buy the factory-made hives from now on. Would you advise the 8 or the 10-frame hives? We have no important honey plants here in East Texas, and our honey comes in rather slow. Although my bees have plenty of super room, they are laying out at nights in big clusters in front of the entrance and in front and back of supers. Only one of my colonies has swarmed. I use full sheets of foundation.

TEXAS.

Answers.—1. It is hard to be certain, but it looks like an afterswarm trying to enter different hives and being attacked by the bees of the hive they tried to enter. I say afterswarm, because these little swarms with virgin queens are more likely to do such unreasonable things.

2. If there is much trouble in the way of brood in supers, you will do well to use excluders, although you will find less trouble if you change from 8 to 10-frames.

3. You will most likely be better pleased with the larger hive.

**New Jersey Beekeepers' Association** will hold a field meet at Branchville, Sussex County, at Mr. O. M. Whitaker's apiary, on August 9. Program will start at 10 o'clock. Everyone is invited.

E. G. CARR,
Secretary-Treasurer.

QUEENS of MOORE'S STRAIN of ITALIANS

**PRODUCE WORKERS**

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey gathering, hardiness, gentleness, etc.

Untested, $1 each; 6, $5.50; 12, $10.
Sel. Unt., $1.25 each; 6, $6.50; 12, $12.

Safe arrival and satisfaction guaranteed. Circular free.

**J. P. MOORE**
**Queen-Breeder Rt. 1, Morgan, Ky.**

Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading. Send us your order for blank books and let us bind your magazines.

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small.

We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**

That Good Queen

in your colony that is two years old. Are you going to try her another year? Are you going to gamble on your next spring's crop? Probably she has kept your colony booming for two years. If she hasn't you don't want her. If she has **Don't** keep her. **Why?** Because she has "exhausted herself." She is no longer a young queen. Next spring she will fail you. Your colony will be weak. And in the spring rush the flow will be over before you can get another. Don't risk your 1919 crop for the sake of 75c. Why not requeen this fall with

**Forehand's Three-Bands**

**THE THRIFTY KIND**

and be sure of your next spring crop. Over a quarter of a century of select breeding brings them up to a standard **Surpassed by None but Superior to Many.** We guarantee pure mating, safe arrival, and perfect satisfaction.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $ .75 | $4.25 | $8.00 |
| Select Untested | 1.00 | 5.00 | 9.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Write for circular

**W. J. FOREHAND & SONS**
**Fort Deposit, Alabama**

*"Griggs Saves You Freight"*

**TOLEDO, O.**

Say, Mr. Bee Man, have you placed that order for supplies yet? If not, remember we not only save you freight, but time and money as well.

**DELAYS ARE DANGEROUS**

But don't delay, as Railway Embargoes are all the rage now, and you may be caught.

**LARGE NEW STOCK ON HAND**

All ready to ship out, direct from ROOT'S, who know how to make good goods.

**HONEY AND BEESWAX**

Always wanted; cash or in trade. Send for FREE CATALOG.

**S. J. GRIGGS & COMPANY**
**Department No. 24 Toledo, Ohio**

*"Griggs Saves You Freight"*

# Classified Department

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

## BEES AND QUEENS

ITALIAN QUEENS from best stock; produce gentle, excellent honey gatherers; very prolific and unexcelled winterers; untested, 90c; 12 for $10; tested, $1.30; select tested, $1.75; extra select tested, $2.50; breeders, $5; hybrid pound packages, per pound, $1.50; nuclei, per frame, $1.50. Add price of queen wanted. Prompt deliveries. No disease.
Golden Queen Apiaries,
R. Kornegay, Jr., Mgr. Mt. Olive, N. C.

QUEENS—3-handed Italians, select untested, $1.50; select tested, $3; select tested breeders, $10. Safe arrival and satisfaction guaranteed.
Clinton Bradway,
Monson, Mass.

FOR SALE—1 untested Golden Italian Queen, 65c; hybrids, 25c.
J. F. Michael,
Winchester, Ind.

FOR SALE—3-banded Italians; queens from best honey-gathering obtainable. Untested queens, $1 each; 6, $5; 12, $9. Safe arrival and satisfaction guaranteed.
W. T. Purdue, Ft. Deposit, Ala.

FOR SALE—Strong colonies of bees with Golden queens in 8 and 10-frame hives; excellent honey gatherers.
Mrs. Anna L. Moore, Newton, Ill.,
Care Fahenkopf.

ITALIAN QUEENS—Northern-bred, three-banded, bighest grade, select untested, guaranteed, queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, $1; twelve, $10; fifty, $35. Send for circular. J H. Haughey,
Berrien Springs, Mich.

FOR SALE—Golden Italian queens that produce good honey gatherers; no foulbrood. Select tested, $1.25; tested, $1; untested, 75c; 6, $4.25; 12, $8 No bees for sale.
D. T. Gaster, Rt. 2, Randleman, N. C.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City.

TESTED leather-colored queens, $2.00; after June 1, $1.50; untested, $1.00; $10 per doz.
A. W. Yates, 3 Chapman St., Hartford, Conn.

FOR SALE—Northern Bred Italian Queens; hardy, prolific goldens, each, $1; six, $5.
Allen R. Simmons, Claverack, N. Y.

FOR SALE—Three-banded Italian queens; untested, one, $1; six, $5; twelve, $9. Tested queens, $1.50 each.
Rob't B. Spicer,
Wharton, N. J.

PURE 3-banded Italian queens, as good as you can buy with money; no disease, and every one guaranteed. Write for prices. No more nuclei or colonies for sale this season.
J. F. Diemer, Liberty, Mo.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
Garden City Apiaries,
San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
H. G. Dunn,
The Willows, San Jose, Calif.

FOR SALE—Pure Italian queens; goldens that are golden, and Doolittle's choice stock. Select untested (laying queens), 1, $1; 6, $5. tested, $1.50; best breeders, $5. For large lots write for prices. Pure mating, safe arrival and satisfaction I guarantee.
J. E. Wing,
155 Schiele Ave., San Jose, Calif.

SWARTS GOLDEN QUEENS produce golden bees of the highest qualities; satisfaction guaranteed. Mated $1, 6 for $5; tested $2.
D. L. Swarts, Lancaster, O., Rt. 2.

FOR SALE—New crop clover honey, extracted, two 60-lb. cans to case, 20c per lb.
H. G. Quirin, Bellevue, O.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln, Ill.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed.
O. D. Rivers,
Route 4, Honey Grove, Texas.

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease..
Wilmer Clarke, Earlville, Madison Co., N.Y.

FINEST ITALIAN QUEENS, June 1 to November, $1 each; 6 for $5. My circular gives safe methods; free. J. W. Romberger,
3113 Locust St., St. Joseph, Mo.

GOLDEN and 3-banded Italian queens will be our specialty. We can also furnish Carniolians. Tested $1, untested 75c each. Bees, per pound, $1.50; nuclei, per frame, $1.50. Send your order for bees early.
C. B. Bankston & Co., Buffalo Leon Co., Tex.

THREE-Banded and Golden Italian Queens and pound packages from the Sunny Southland.
Grant Anderson,
Rio Hondo, Texas

FOR SALE—Golden Italian Queens that produce gentle and good honey-gathering bees. My bees were prize winners at the Illinois State Fair. Mated, untested, $1; select untested, $1.25; tested, $2. No bees for sale.
A. O. Heinzel, Lincoln, Ill.

## HONEY AND BEESWAX

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section.
Charles Israel Bros.' Co., Inc.,
486-490 Canal St., New York.

QUICK CASH for extracted and comb. Send sample, or describe and say price.
Bruner, 3836 N. Kostner Ave, Chicago. Ill.

CASH paid at your bank for carlots and less, of comb and extracted honey.
Wesley Foster, Boulder, Colo.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa. Monroe, Wis.

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

## HONEY LABELS

SEND TODAY for samples of latest Honey Labels. Neat, attractive labels at lowest prices. Catalog free Liberty Pub. Co.,
Sta. D, Box 4-H, Cleveland, O.

## QUEENS THAT WILL PLEASE

**OVER 20 YEARS OF CAREFUL SELECTING AND BREEDING**

**GUARANTEE**

You take no risk in buying my Queens, for I guarantee every Queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction.

They are bred from **Imported** stock. The very best bees for honey gathering and gentleness. They are not given to swarming and are highly resistant to disease. Give me your order and if, after you have given my queens a fair trial, you are not satisfied in every way that they are as good as you have ever used, just return them and I will send you queens to take their places or return your money with any postage you have paid out on returning the queens.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $ .75 | $1.25 | $8.00 |
| Select Untested | 1.00 | 5.00 | 9.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Untested, $60 per hundred.

**L. L. FOREHAND : : FORT DEPOSIT, ALA.**

# TYPEWRITER SENSATION

**$3^{00}$ A Month Buys a Visible Writing L. C. Smith**

Model No. 5 perfect machines only of standard size with keyboard of standard universal arrangement—has Backspacer—Tabulator—two color ribbon—Ball Bearing construction—every operating convenience. **Five Days Free Trial.** Fully guaranteed. Catalog and special price sent free.

**HARRY A. SMITH, 314 -- 231 North Wells Street, CHICAGO, ILL**

## WANTED

WANTED—A good honey location to start a line of apiaries; will give a suitable reward for the best reliable information.
D. E. Lhommedieu, Colo, Iowa.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Second-hand honey extractors; tell me what you have and price; also wax presses. W. D. Soper, Jackson, Mich.
Dealer in all kinds of Bee Supplies.

## SITUATIONS

WANTED—Two men to work with bees; state age, experience and wages; position for season, or may be permanent for right man after trial. The Rocky Mountain Bee Co.,
Billings, Mont.

WANTED — Industrious young man, fast worker, as a student helper in our large bee business for 1918 season. Truck used for outyards and hauling. Apiaries located near summer resorts. Will give results of long experience and board and small wages. Give age, weight, experience and wages in first letter.
W. A. Latshaw Co., Clarion. Mich.

## FOR SALE

FOR SALE—New No. 15 latest model, slip gear Cowan Extractor, $20. One slightly used, standard gear, $16. Lorenzo Clark,
Winona, Minn.

FOR SALE — Thoroughbred Single Comb Rhode Island Reds, $10 per setting of 15 eggs. Heavy laying strain. W. L. Harper,
Cucamonga, Calif., Rt. 1, Box 68.

TINS at a saving; 2-lb., 5-lb. and 10-lb. friction top tins. A bargain.
Bruner, 3836 N. Kostner Ave, Chicago. Ill.

FOR SALE—Beehives, nailed and painted 10-frame; 1,000 1⅞x4¼ No. 1 sections; some foundation. Will sell at bargain.
S. F. Hanson, Hiawatha, Kans.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick. Sunnyside, Wash.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Price $80 er acre; $7,000 for farm and bees, 150 extracting supers with combs, 100 excluders, 2-frame extractors, 2 large honey tanks, 150 shallow supers. Terms, $3,000 cash, balance on time. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling. W. M. Penrod, Ronneby, Minn.

FOR SALE—Shallow extracting supers, 8-frame 50c, 10-frame 55c each, in lots of 5. Wood-bound zinc, 22c; wood and zinc, 24c. A few 4x5 or 4¼x1½ No. 2 sections at $4 per 1,000. Write for prices on other goods.
H. S. Duby, St. Anne, Ill.

FOR SALE—Having been drafted, I am offering for sale 40 colonies of bees, free from disease, in 8-frame dovetailed hives. Hives are in good condition, standard size. Also about 75 full-depth extracting supers, with drawn comb. Combs are all wired from full sheets of foundation. In order to dispose of these I will sacrifice them at any price. Let me hear from you. Paul D. Roban, Waverly, Minn.

FOR SALE—Honey jars at reduced prices; all sizes. Write your wants to
D. H. Welch, Racine, Wis.

FOR SALE—Beehive factory; seven apiaries with extracting equipment; comfortable cottage home and auto truck. All for $5,000 cash.
J. O. Hallman, Helena, Ga.

**CANS AND SHIPPING CASES**

We have a fine stock of Five-Gallon Cans and Shipping Cases; also Comb Foundation, Extractors, Honey Tanks, etc. Quick shipments.

MADE RIGHT
BEE SUPPLIES
*Quality ... Service*

**THE KRETCHMER MFG. CO.**
**301 Eleventh Avenue**
**Dept. A** **COUNCIL BLUFFS, IOWA**

**"Practical Queen-Rearing"**

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointers in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.
(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

**BEEKEEPERS**
**KEEP IN TOUCH WITH**
**Leutzinger & Lane**
**236-238 Drumm St.**
**SAN FRANCISCO, CALIF.**

**Buyers of EXTRACTED and COMB HONEY**
**Shippers and Exporters of HONEY**

[ The WORLD is Our Market ]

# Crop Report and Market Conditions

For our August issue we asked the following questions of reporters:

1. How large is the honey crop, compared to last year?
2. What are the prospects for the rest of the year, compared to last year?
3. Has the increase made been sufficient to balance all last winter's losses and bring the total of the bees above what it has ever been before?
4. Is honey in good demand? Is it being sold as fast as harvested?
5. What prices are being obtained, wholesale and retail, for both comb and extracted? What do you expect to get for your own crop,, and how much have you?

## THE HONEY CROP

Maine reports a crop about equal to 1917, with Vermont and New Hampshire reporting about 80 per cent as much. Massachusetts claims 125 per cent of 1917.

New York claims to be better generally than last year, with conditions still in doubt, owing to the lateness of the crop.

All of the South shows an increase in honey over 1917, with the exception of Louisiana, where the crop is poor. Georgia reports 75 per cent of 1917, but Florida claims 175 per cent, Alabama and Mississippi 200 per cent, Tennessee 150 per cent, with Kentucky below last year's average.

Texas will probably average from 25 to 40 per cent better than in 1917, with far from a good crop yet. Some localities are still short, though not as short as in 1917.

In the Central States, Ohio is about 25 per cent better than it was, Illinois and Indiana are better, because they had a crop failure in 1917. Conditions have improved greatly in these sections and some surplus will be stored, though far from anything like a moderate crop. Over most of Iowa there will be a little honey, but this does not include the sweet clover regions of the extreme west, where the crop is above last year, one reporter claiming 125,000 pounds from his 950 colonies.

Michigan will probably have from 25 to 50 per cent as much honey as in 1917, partly owing to a lack of bees. Wisconsin has had a crop failure, two or three reporting less honey than ever before remembered. Minnesota is the same. South Dakota has fared better, owing to the sweet clover, and will be slightly better than in 1917. Kansas and Nebraska are both slightly better than last year, while Missouri will have a very short crop.

In New Mexico there will be 150 per cent as much as in 1917, while Colorado claims about what they had last season, which is in the neighborhood of two-thirds of a crop. Montana will average well up to last year, as will Idaho. Wyoming may have a little more honey than it did in 1917.

In California reports are conflicting. Most reports are that there will be from 40 to 70 per cent as much honey as last year. The Imperial Valley will range well up to last year, as will Riverside County. One reporter in Acton states that he will get three times as much as in 1917, but the bulk of the reports are as above stated.

## FALL REPORTS

Prospects for the balance of the crop rank generally about up to 1917, except that conditions seem to be unfavorable in Tennessee, Minnesota and Wisconsin.

The following States expect more honey from now on than they got in 1917: New York, Western Iowa, Nebraska, Kansas, Wyoming.

## INCREASE

Great efforts have been made by beekeepers to retrieve previous losses and bring the number of bees above what it has been in the past year or two. Most localities report all losses made up and possibly some increase. Those States making the most increase seem to be Florida, Ohio, Western Iowa, South Dakota, Nebraska, Kansas, New Mexico, Montana and Wyoming.

Texas claims that it will take a year or two yet to make up past losses, and California claims bees not up to past numbers yet. Missouri, with successive poor crops, is very short of bees.

On the whole, there are hardly more bees than in 1917, and very likely less, especially if the smaller farmer beekeeper is taken into consideration, and this, too, in spite of the efforts of most beekeepers to follow the urging of the authorities to boost honey production.

## HONEY DEMAND

In most instances the honey is still on the hives. Local demand is very good and there is no difficulty in disposing of the crop, if the beekeeper is satisfied with the prices being offered him. Bottlers are buying, but not like they did in 1917.

It has been suggested that honey should hardly hold its present high mark, owing to the difficulty of shipping abroad. It is certain that shipping agents and forwarders have difficulty in getting space on boats. In spite of this, however, honey is moving to England, and brokers on the job in New York do not hesitate to offer on all honey offered them. Shipping conditions, too, should improve as the time goes on.

## HONEY PRICES

In our last report we suggested a minimum price of 20 cents for white extracted honey. We see no reason to change this, unless it should be slightly. We know of two cars of sweet clover honey from Mississippi being sold for 20 cents per pound f. o. b. shipping station. This is for new crop.

One Georgia producer sold 200 barrels extracted at 18 cents, while his comb went for $4.50 per case. He states that he will take no less for the balance of his crop.

Some of the offers are being made to producers as follows: Kentucky white, 22c; Texas, 18c; Colorado, 18c and $5.50 for comb; California amber, 18½c; white, 20c; water white, 22c.

Members of the Montana Association had a meeting recently and recommended the following as the minimum which should be obtained: White extracted, 20c, and comb $6 per case.

Several producers, some of them having as high as 100,000 to 200,000 pounds, are expecting to hold for a price of 25 cents for white extracted, while one of Colorado's largest comb honey producers is asking $6 per case for No. 1 comb honey.

One New York broker has suggested that he can get 22 cents for amber and 24 cents for white in cans f. o. b. New York, his brokerage to be deducted. Depending on the freight rate, this would net from 19 to 20 cents for amber and 20 to 22 cents for white.

We see no reason for changing our idea of relative prices. Prices as recommended by the Montana Association should be obtained. Possibly the market will advance, but information at hand now would hardly warrant our suggesting it to subscribers, though it hardly seems that prices as above will see much shrinkage, unless something unforeseen should occur.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item**, a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping**, or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## Texas Queens

**No more bees in packages, but queens galore from June 1 to October 1. Untested, 75c each, $8 per doz.; tested, $1.25 each, $12 per doz. I have the Three-banded Italians and Golden Italians; very choice stock.**

**GRANT ANDERSON,**
**Rio Hondo, Texas.**

## Weis Fibre Containers

### FOR EXTRACTED HONEY

Neat, clean, leak-proof, and inexpensive. Especially adapted for home market.

Send for prices. Samples, postpaid, 15c in stamps.

**M. H. HUNT & SON, Agents**
**LANSING, MICHIGAN**

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.

**American Bee Journal, Hamilton, Illinois**

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

## Attention Eastern Beekeepers

**WE HAVE A COMPLETE STOCK OF**

### Lewis Beeware and Dadant Foundation

We are located on a main line of the New York Central and the West Shore, as well as branches of the Pennsylvania and Erie Railroads; also the Rochester & Syracuse Electric Line, which assures prompt delivery. Parcel Post orders receive prompt attention.

Five and ten-pound pails, also five-gallon cans and glass jars.

Queens, three-banded and Golden Italian, ready for delivery now. Untested, $1 each; 6 for $5.50; 12 for $10; tested, $2; 6 for $10.

Safe delivery guaranteed, dead queens being replaced upon their return.

**THE DEROY TAYLOR CO.**
**Newark, New York**

## Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly.

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**No Nuclei or Bees by Pound.**

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

## Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**

**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# QUEENS Hardy, Long Lived and Disease Resisting QUEENS

**Twenty-Two Years of Select Breeding Gives Us Queens of Highest Quality--Queens for Honey Production--Queens of Unusual Vitality**

*"There are few Queens their equal and none better."*

### WHAT BEES DO, HEADED BY OUR QUEENS

"One swarm made 185 sections of honey and another 296 sections. I am well pleased."—MELVIN WYSONG, Kimmell, Ind.

"Your bees averaged 150 pounds of surplus honey each. I find them not only hustlers, but gentle."—FRED H. MAY, Meredosia, Ill.

"I have tried queens from several different places and like yours best of all."—C. O. BOARD, Alabama, N. Y.

"We are only one mile from Lake Erie and exposed to high, cold winds; in fact, this is the windiest place along the great lakes. Your bees were able to stand the winter with only an insignificant loss, and we would have no others. As for honey, they averaged 175 pounds of extracted surplus, did not swarm, and gave an artificial increase of 30 per cent, which is as fine a record as can be had in this locality, especially when the work is done entirely by amateurs." Name furnished on request. North East, Pa.

**Price List of Our Golden and Three-Banded Italian Queens**

| | | | | | |
|---|---|---|---|---|---|
| Untested | $ .75; 25 or more, $ .60 each | Select untested | $ .90; 25 or more, $ .75 each |
| Tested | 1.50; 25 or more, 1.25 each | Select tested | 1.75; 25 or more, 1.60 each |

We guarantee safe arrival of all Queens, that they are very resistant to European foulbrood, and, in fact, will give complete satisfaction. Wings clipped free of charge. Our capacity is 2,000 Queens monthly.

**M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.**

---

# Mr. Beekeeper:

Increase your honey crop by giving the bees all the super room that they can fill.

We will help you by furnishing you with fixtures ready for use, at the lowest prices.

Hives and supers, nailed and painted; frames, wired and filled with full sheets of foundation; sections, filled with foundation, can be shipped on short notice.

The LEWIS LINE is in the lead with the live honey producers.

**WESTERN HONEY PRODUCERS**
**Wholesale and Retail Distributors**
**SIOUX CITY, IOWA**

---

# "OUR BEES ARE GENTLE"

## Re-Queen

from our vigorous strain of

## Italian Queens

They have won a national reputation as disease resisters and great honey-getters.

Our prices for delivery after June 15:

**Untested,** 1 to 4, $1 each; 4 to 6, 95 cents each; 6 to 9, 85 cents each; 9 to 12, 80 cents each; 12 to 24, 75 cents each.

**Tested,** $1.50 each.

**Breeders,** $5 each.

Write for descriptive booklet.

**JAY SMITH**

**Route Three** **VINCENNES, IND.**

---

PATENTED

**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine n one day. Tighter wires, no kinks, no sore hands. Price, $2.50, postpaid in U. S. A.

**G. W. Wright Company, Azusa, Calif.**

---

PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

---

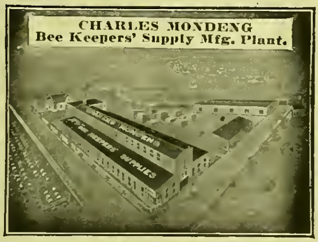
**EARLY ORDER DISCOUNTS WILL**

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

---



## A BIG STOCK OF

# BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

## CHAS. MONDENG

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

---

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

---

## ORDER YOUR

# BEE SUPPLIES

## EARLY

**We want you to have our catalogue. Send for one.**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

---

## QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

---

### Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4.25; doz. $8.00 select tested, $1.25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35; 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk. No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

---

## BEE SUPPLIES

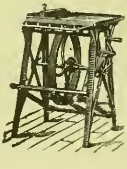
**Let Us Figure With You**

We know we can satisfy you on price and $8.00; select tested, $1.25.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

---

# BARNES' Foot-Power Machinery



Read what J. J. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

## Root's Strain of Italian Queens

¶ Owing to the enormous demand for our Queens, we have been compelled to advance our prices over last season, In numerous cases this strain has proven itself to be

**ALMOST ENTIRELY IMMUNE TO EUROPEAN FOULBROOD**

¶ The Queens are reared by one of the best queen-breeders in the whole United States, namely, Mr. M. P. Pritchard & Sons. They are famous for their resistance to European foulbrood and

**FAMOUS FOR HONEY-GATHERING QUALITIES**

*Write for special terms.*

**The A. I. ROOT COMPANY**
**MEDINA, OHIO, U. S. A.**

CYPRESS "THE WOOD ETERNAL"

S C A M
TRADE MARK REG. U.S. PAT. OFFICE

CYPRESS DEFIES DECAY

ALWAYS MAKE SURE THAT THIS TRADE-MARK IS STAMPED ON EACH PIECE OF

"*Tidewater*" *Cypress*

*"THE WOOD ETERNAL"*

THEN YOU BUY SAFETY (AND SATISFACTION) FIRST, LAST AND 'TWEEN TIMES

## "ALL-HEART" GRADE FOR BEEKEEPERS' USE

Southern
Cypress Manufacturers
Association

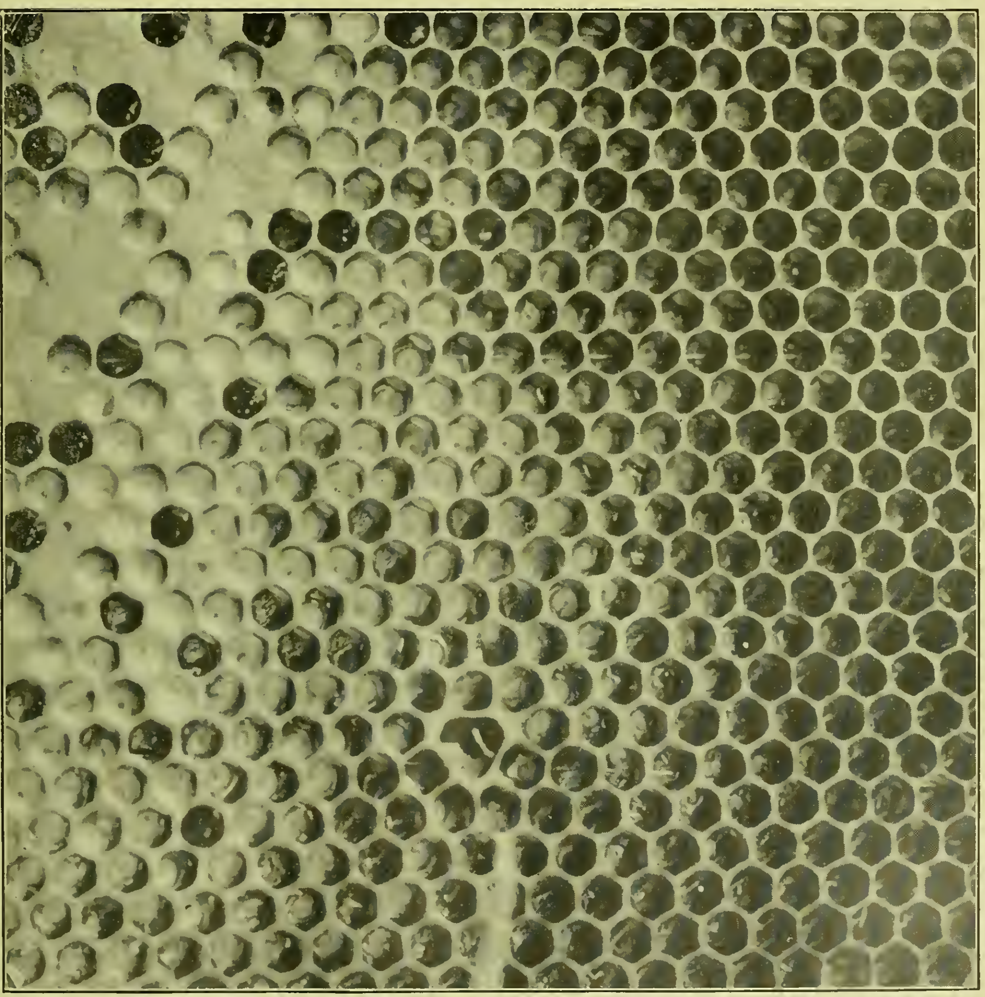
ADDRESS NEAREST OFFICE

**1251 Hibernia Bank Building**
**NEW ORLEANS, LA.**

**1251 Heard Nat'l Bank Building**
**JACKSONVILLE, FLA.**

AMERICAN BEE JOURNAL

SEPTEMBER, 1918



BROOD IN ALL STAGES

# Ready Money for Your Honey

**SHIP IT NOW**

If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

**PROMPT REMITTANCE**

Remittance sent by return mail for every shipment we receive. Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

**OLD COMBS and CAPPINGS**

Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED---COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

## Our New Home

We are now located at Pearl and Walnut Sts., and have the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

## We Sell Lewis' Beeware

"Lewis" stands for the highest quality Beeware known. It is safe and reliable. "Made like furniture." We are glad to fulfill your needs.

**SEND FOR OUR 1918 BEE CATALOG**

**DADANT'S FAMOUS FOUNDATION**

**ROOT'S SMOKERS and EXTRACTORS**

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
**CINCINNATI, OHIO**

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price Postpaid $1**

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price Postpaid $1.25**

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price Postpaid $1**

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price Postpaid $1.50**

ALL FOR SALE BY

**AMERICAN BEE JOURNAL**

HAMILTON, ILLINOIS

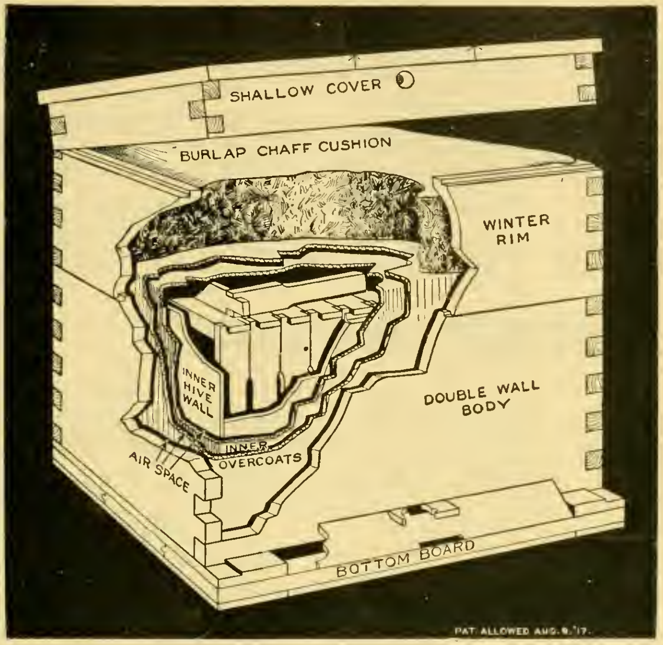
# WINTER PROBLEM SOLVED

BY

# Woodman's Improved Protection Hive

"THE HIVE WITH AN INNER OVERCOAT"

**100% Perfect Protection by Tests, Winters of 1916-17-18**



**The Inner Overcoats did it** Without any special preparation, bees wintered without loss in these hives. There were no dead bees on the hive bottoms, and it was a joy to see the condition they were in as compared with other styles of hives. The Corrugated Paper Bottomless Box, Inner Overcoat, is telescoped down in between the outer and inner hive walls when preparing them for winter. It is removed in the spring and stored away in the K. D. flat. Not more than two minutes are required to insulate a hive for winter or to remove it in the spring by this method. It is the simplest and most efficient method and does away with a great amount of labor. You have no packing cases or packing material, such as shavings, sawdust, chaff or leaves to house and bother with. Try out a quantity of these hives the coming winter, as hundreds of others are doing. Bees are valuable these war times and you cannot afford to lose them. Send for a special circular showing ten large illustrations.

## TIN HONEY PACKAGES

| | | |
|---|---|---|
| 2 lb. | Friction Top Cans in cases of 24 | $ 1.15 per case |
| 2 lb. | Friction Top Cans in crates of 612 | 24.00 per crate |
| 2½-lb. | Friction Top Cans in cases of 24 | 1.35 per case |
| 2½-lb. | Friction Top Cans in crates of 450 | 20.00 per crate |
| 5 lb. | Friction Top Pails in cases of 12 | 1.10 per case |
| 5 lb. | Friction Top Pails in crates of 100 | 7.50 per crate |
| 5 lb. | Friction Top Pails in crates of 203 | 14.50 per crate |
| 10 lb. | Friction Top Pails in cases of 6 | .90 per case |
| 10 lb. | Friction Top Pails in crates of 113 | 12.50 per crate |

For a limited time we offer the above packages at these special low prices, shipment to be made from Chicago. Write for prices on 60-lb. cans, giving quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

## "falcon"

### THINGS THAT ARE NECESSARY FOR YOUR APIARY

1. There must be a good location for the apiary.
2. Queens must be healthy and vigorous to put life into the hives. (Our queens are the best to be had and at reasonable prices.)
3. Your bees cannot do the work they should if you do not give them the best with which to work. If they have ample storage space, if they can work all the time without slack motion, they will be more contented and swarmless. To accomplish this, you must give them ample storage space, that is, the **RIGHT HIVES AND SUPPLIES. "falcon"**

Beekeepers should be placing their orders early for their early needs. He who waits is apt to suffer. These late beekeepers who want their goods in such a hurry at the last minute will lose some of the honey crop by not furnishing their bees with ample storing space. Railroad embargoes and rush business make deliveries slow.

Our famous **"falcon"** supplies will please you. Do not wait. Order now and strike while the iron is hot. **"falcon"** means the best, the standard of perfection. Red Catalog and Simplified Beekeeping upon request. Dealers everywhere.

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Good Beehives Come From**

## HONEY WANTED

We are in the market at all times for unlimited quantities of Honey, both comb and extracted. Before selling your crop let us hear from you, quoting your lowest price, either f. o. b. your station or delivered Cincinnati. If extracted, mail sample and state how it is put up. If comb honey, state grade and how packed.

**C. H. W. Weber & Company**
**CINCINNATI, OHIO**

## TENNESSEE-BRED QUEENS

**46 Years' Experience in Queen-Rearing**
**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

## We Offer

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**
**Glen Cove .. New York**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# ?? WHY ??

Why is it that so many beekeepers prefer Dadant's Foundation? Why does it give such good satisfaction and why is it that when tested side by side with many other makes beekeepers have reported that "they take to Dadant's first?"

**Do We Use Special Sheeting Machinery? No**

We use the Weed process of sheeting our beeswax into endless rolls, and it is the same process as used by nearly all manufacturers.

**Do We Use Special Foundation Mills? No**

We use the same kind of mills as are used by practically every foundation manufacturer in the world.

**Do We Use Special Beeswax? No**

We use beeswax such as is produced by beekeepers all over the United States.

## THEN WHY?

**BECAUSE**

Our beeswax is cleaned in such a way that all impurities are removed and all the fine qualities are retained.

**BECAUSE**

Sulphuric and other acids recommended and used by many manufacturers for cleaning beeswax are not used by us.

**BECAUSE**

Our motto is and always has been "EVERY SHEET PERFECT"—and we live up to it.

**BECAUSE**

For FORTY YEARS comb foundation has been, and still is, our *specialty*. When you get Dadant's Foundation you know that you are getting the best that money can buy. When you send your beeswax to us to be worked into foundation you know that you will get perfect work done. When you ship us your old combs and cappings to render you will get the maximum of wax they contain and, if desired, this wax will be worked into the finest quality of foundation made.

It is Up to You, therefore, to insist on Dadant's Foundation when you order your goods from your dealer. If you cannot get it from him, then order from us.

**DADANT & SONS**

**HAMILTON, ILLINOIS**

# LEWIS SECTIONS

## HAVE

## INDIVIDUALITY

BECAUSE they are in a class by themselves. They are not like other sections. Very rarely do they break in folding---in fact one of our customers writes us that he has put up (folded) thirty thousand Lewis Sections in a season and has not found *one section* in the whole lot that was not perfect. Beekeepers everywhere, no matter what their preference may be for hives or other bee equipment, agree that, when it comes to sections, the LEWIS SECTIONS are supreme. This is—

**Because** the material which goes into a **Lewis Section** is of the right kind, especially selected for the purpose. The stock is sorted and re-sorted—the discolored stock thrown out, leaving only the whitest material to go into **Lewis Sections.**

**Because** the V groove, which is the most important process in the manufacture of a section, is made just right. In the **Lewis Section** it is cut just deep enough so that the section will not break in folding. The **Lewis Section** expert has been supervising the manufacture of **Lewis Sections** for over thirty years.

**Because** the finishing of the section is given the utmost care. The **Lewis Sections** are polished on both sides in a double-surfacing sanding machine designed in the Lewis plant especially for this purpose. It insures the uniform thickness of each and every section. The dovetailing of the ends is smooth, clean and just right.

**Because** even after the **Lewis Sections** are completely manufactured, the packing is considered a very important part of the marketing. All **Lewis Sections** are put up in regular standard packages containing a good, full count. A tight wooden box is used, entirely enclosing the contents, so that no discoloration from air can occur, no matter how long the sections are carried in stock. The package is also strongly braced at all corners, insuring delivery in good order.

**AT THE SAME PRICE YOU PAY FOR OTHER STANDARD MAKES OF SECTIONS YOU GET ALL OF THE ABOVE WHEN YOU BUY THE LEWIS SECTIONS**

**INSIST ON LEWIS SECTIONS — LOOK FOR THE BEEWARE BRAND**

**G. B. LEWIS COMPANY**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS U.S.A.
MAKES THE FINEST

**Watertown, Wisconsin**

**ORDER FROM YOUR NEAREST DISTRIBUTOR**

AMERICAN BEE JOURNAL

VOL. LVIII—NO. 9 HAMILTON, ILL., SEPTEMBER, 1918 MONTHLY, $1.00 A YEAR

# GLIMPSES OF SOUTHWEST TEXAS

## Beekeeping Conditions in the Semi-Arid Region Where Every Bush has a Thorn, as seen by Frank C. Pellett.

TEXAS seems to be divided into several natural regions, from the standpoint of the beekeeper, as already mentioned in a previous article. San Antonio is near the northeastern border of the mesquite region. Mesquite is plentiful for a long distance north of that city, but near the northern boundary of Bexar county is the line where cotton begins to yield honey in surplus quantities. Accordingly that territory must be regarded as in the natural division where cotton is the predominant honey plant. A line drawn in a southeasterly direction from San Antonio, through Cuero and Victoria to the gulf, would probably mark the approximate eastern boundary of the mesquite region. Figure 1 shows a characteristic group of the southwestern honey plants at Goliad. Here are seen agarita, mesquite, hackberry, Mexican persimmon, brazilwood, anaqua, prickly pear and huisatche; all good honey plants, growing together in one group. At Victoria, in the next county and only about thirty miles away, we find a very different flora. Agarita is common at Goliad, but is absent at Victoria. Victoria is about the eastern limit of mesquite at that point. Anaqua is still to be found in limited quantity, but the flora is, for the most part, the same as common to other parts of east Texas. It is surprising what a change one finds in the flora in such a short distance. After finding the thorny flora of the southwest for a continuous stretch of about two hundred miles, one is not prepared for such a sudden change. The natural boundary of this region is not difficult to find. The escarpment between San Antonio and New Braunfels distinctly marks the northern boundary, while the river at Victoria is almost as clearly the eastern boundary. The Rio Grande valley marks the south and west boundaries.

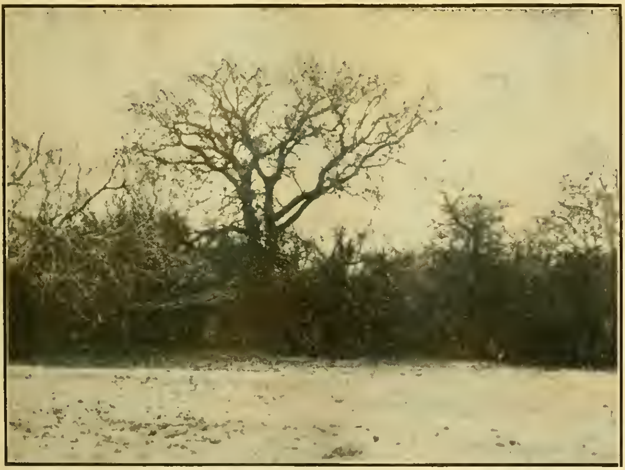


Fig. 1 A clump of southwestern honey-plants at Goliad, Texas. Aganta, mesquite, hackberry, brazilwood, anaqua, prickly pear and huisatche; all good honey-plants growing together

It is in this region that commercial beekeeping has reached the highest development in Texas. In some counties one finds more commercial beekeepers than in whole States in other sections of the country. Instead of getting honey from cultivated crops like cotton or clover, the beekeeper is dependent almost wholly on the wild flora for surplus. Beekeepers report that wherever the land is cleared they find it necessary to move their apiaries, as none of the cultivated crops common to this section yield honey in surplus quantity. Even cotton is of little value on the light soils of this part of Texas.

Most of the honey comes from thorny shrubs, such as catclaw, huajillo (pronounced waheya) and mesquite. The soapbush has the appearance of an evergreen shrub, and is able to withstand the most severe drought. It is reported as yielding from ten to fifteen days during its period of bloom.

One marked peculiarity of the plants of the southwest is the uncertainty of the time of blooming. In the northern States the beekeeper can anticipate approximately the time of his honeyflows and prepare accordingly. In the southwest, the blooming periods are likely to occur at almost any time, depending upon the weather. The soapbush blooms after the rains in both spring and fall, and the time of the rains will thus determine its time of bloom. Whitebrush is an important source of honey over much of this part of Texas, and it is said to bloom several times during the year, in favorable seasons, always following the rains. Should the season be dry throughout, it will yield no honey, while in seasons when there are frequent rains it will yield several times in the same year.

At Goliad, the Collier brothers have about a thousand colonies of bees. They report that brazilwood is the best all-round source of honey in their locality. It blooms sometimes in spring, sometimes in fall. Some years it blooms several times and yields at irregular periods. Mesquite also blooms at two or more periods during summer. The cactus or prickly pear, which is so common everywhere in the southwest, is valued especially for pollen. Its period of blooming is reported as more regular. Beginning in July, it blossoms for four to six weeks. About one year in four it yields some surplus honey, but the flow is usually very short, continuing but four or five days. The honey is peculiar in appearance, granulating in large crystals in clear liquid. It is often spoken of as buttermilk honey, because of this peculiarity. E. G. Le Stourgeon reports one year an average yield of 87 pounds per colony from prickly pear in Atascosa county.

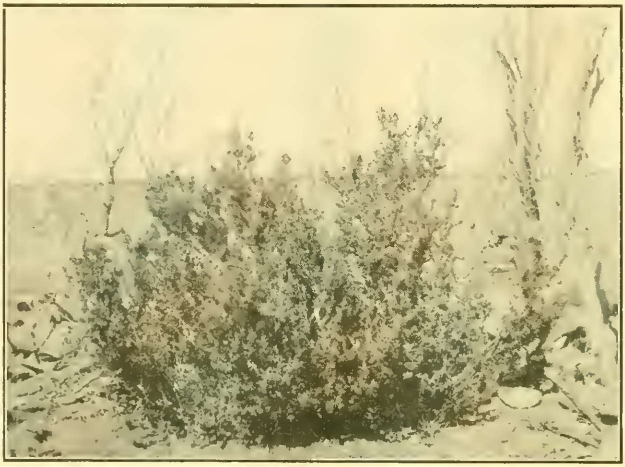


Fig. 2. The soapbush is able to withstand severe drought

Horsemint is found in every part of Texas which I visited. It is regarded as an important source of nectar from the Rio Grande valley to Southern Kansas. It is not dependable every year, but is abundant following wet winters. The moisture serves to germinate a new crop of seed. In the Rio Grande valley it is reported as sometimes yielding as much as 20 pounds surplus per colony, average. The importance of the plant seems to increase as one moves northward. The time of bloom is reported as varying in different parts of the State. Several beekeepers mentioned horsemint honey as having a tendency to ferment in wet seasons. Unless great care is used in ripening, the beekeeper has trouble after the honey is in the cans. A few cases were reported where it even soured in the combs.

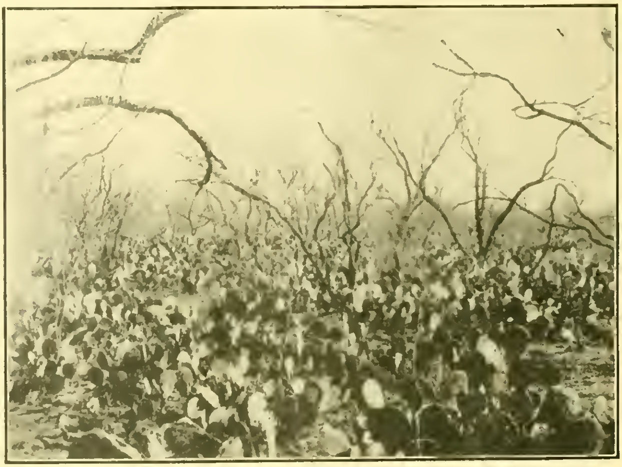


Fig. 3. A typical native flora where the cactus and mesquite grow in abundance

This part of the southwest is deficient in rainfall. Most of the plants on which the beekeeper depends yield with but little rain. A light shower is all that is necessary to bring some of them into bloom. It sometimes happens, as was the case last year, that the flora remains dormant to the extent that little bloom is open. Then bees suffer severely. In 1917-18 the losses were from 25 to 75 per cent in many counties in southwest Texas. The losses were most severe at a distance from the streams, where the upland flora furnished the entire dependence. The most serious feature at such times is the shortage of pollen. At some points in the western portion of the mesquite region, the bees were unable to continue brood-rearing when fed with sugar syrup, and swarmed out and left the hives in large numbers. Along the streams where some pollen was available, the losses were much lighter, and in some cases there were none.

At some points along the Nueces river, there was a secretion from live oak balls which saved the bees in 1917. George Schmidt, at Crystal City, reports this as occurring in dry seasons. He thinks his bees gathered an average of 25 pounds per colony from this source in 1917, most of which was used to carry them through. He took off ten cases of this live oak honeydew. It was amber in color, very thick, and tasted strongly like molasses.

There is a great variation in the yield of honey in different parts of the mesquite region. In some localities the beekeepers are unable to secure more than twenty-five pounds as an average surplus, one year with another. In other places, they report that in a normal season they get 100 pounds per colony. The estimates of yield differ with different localities, from 25 to 100 pounds.

A few miles often make a great difference in the yield, depending upon the local showers of the season. At Sabinal one man, J. A. Simmons, has eleven yards. The extremes are only thirteen miles apart, yet he never gets a full crop in all of the yards in the same year. Every year some locations will get showers which do not occur in others, with the result that the yield will be much increased. In the rare seasons when the rainfall is well distributed throughout the year, the honey-flows in this region are wonderful.

In 1900, at Mathis, there was a flow from catclaw in March, followed by huajillo. In May there was a good flow from mesquite, and in June and July a very unusual flow from cotton. There was a further flow from plants that rarely are of value.

For several years following this favorable season commercial beekeeping was an important industry about Mathis. The past two years, with no honey, have proved so disastrous that nearly all the beekeepers who depend exclusively upon the business have moved out. It is very probable, however, that seasons of great abundance will follow the lean years, and thus equalize things, after all. Wm. Atchley was the last of the extensive honey producers remaining at Mathis, but he was preparing to go shortly unless conditions changed. The bees were finding it so hard to maintain themselves, even with enormous amounts of sugar, that it seemed impossible to continue safely.

There are few places in America where beekeeping has attained the importance that it holds in southwest Texas. In towns like Beeville and Uvalde they talk about bees and honey as they do corn and hogs in Iowa or Illinois. Under normal conditions a good many cars of honey will be shipped from a single town. The public has a proper appreciation of the commodity that brings in the cash for conducting the business of the community. In Alabama it is cotton, in Iowa it is corn. California oranges and raisins are exchanged for perfectly good money in eastern markets. In southwest Texas honey is one of the leading cash crops. The two years drought has hit the beekeepers and the country generally pretty hard, but other sections and other industries hit the bottom at times. Beekeeping is on too firm a footing to suffer permanently from a bad season. There are a good many men who have upwards of a thousand colonies of bees under normal conditions and who consider less than a carload of honey a short crop.

## Apicultural Don'ts

By D. M. Macdonald

DON'T tinker with Inferior Bees. Most cheap articles are dear in the end. Poor, mongrel bees cost as much to house as those which may be called first class. They are as costly to start when furnishing the new home. Frames, brood foundation, the wire, the process of inserting, fixing and wiring, cost the same. The result of the first season's work in the one case is generally all that could be desired, in the other, comb construction is poor in quality and frequently proves defective, then and for all time. Poor bees often propolize over much, thus causing the workers needless labor and imposing on their keeper worry which proves a heavy tax on his temper when manipulating, and not conducive to good temper in the bees. Mongrels are almost invariably cross-tempered. At the end of the season with the good bees, bumper crops of well-finished, shallow frames or sections are all but a certainty. The poor bees, in nine cases out of ten, at least, give poor returns, and that of poor quality and defective finish. The first will give several crates, the others will lag far behind. Packing for winter is a pleasure with the best bees. Every colony has strong forces, ample stores, and many newly-hatched bees. In the other case few bees, a poor cupboard, and too many aged workers make wintering a doubtful asset. Keep the best bees, in the best way, packed with the best winter packing—bees.

Fig. 4. Group of beemen at Beeville

Fig. 6. A group of beemen in the Edwards apiary at Sabinal

Don't Keep Low Grade Queens.—This point is not quite on all fours with the previous don'ts. The same, or somewhat similar results, may occur here again, but there are added drawbacks. A queen guaranteed to lay 50,000 eggs in the time a weakling takes to lay less than half that number gives the population an enormous pull over the inferior one. The results are not in proportion to mere numbers alone. The strong one will not only have double the population, but will present its owner with at least four times the surplus, a point well worth considering. Its work, too, will be more highly finished, be completed in far less time, and approach nearer to perfection. On account of the larger numbers the strong colony will forage earlier in the forenoon and keep up work later in the afternoon than the laggard. They will go farther afield, thus frequently obtaining richer forage grounds, and they will make flights to the bee pastures on days when the other remains indoors. They will manufacture wax quicker, build comb more expeditiously, and seal stores with less trouble and greater speed. The weakling will worry carrying propolis to glue up every corner in case of draught, the powerful can sustain internal heat without any trouble. Then, as a matter of fact, the strong actually consumes less stores relatively, or at times actually, than the small number. The cause is patent.

Don't Manipulate Out of Season.—Bees are best left alone for about half the months in each year. Winter is a season of repose in the hive interior. Bees exist then in a state of semi-hibernation. Every ounce of calorie-generating food consumed as a result of disturbance is not only needlessly wasted but it acts injuriously, for the agitation begot in the cluster tends to weaken and prejudicially affect the digestive system. To restore the temperature of the disrupted cluster, food must be consumed, and the bees may be forced to take untimely flights to void their feces. In general, the caution applies to too late examinations in autumn and too early inspections in spring. Any attempt at late feeding to remedy defective stores or early stimulation to start untimely breeding, works evil and not good. "Jumping" the frames, your equivalent of our phrase "spreading the brood," in early spring, causes mischief. Opening hives when weather is cold or when a chill wind is blowing, is a blunder which may destroy brood and drive workers from the supers.

Don't Buy Cheap Articles.—Cheap and nasty are often synonymous terms. A cheap second-hand hive may ultimately turn out a dear one. A novice should never be beguiled into investing in colonies offered "at an old song," because an odd sized hive may be dear at any price, as none of its parts are interchangeable with other hives in your apiary. No worse investment can be made by the beginner in apiculture. Even a parson may be guilty of thus beguiling the unwary. Purchase your bees, if possible, from a near neighbor, a man of probity, on whom you can rely, or treat with an appliance dealer of repute. Such men have to obtain and sustain a good name. Be prepared to give a good price for a good article, the regular market price being a safe guide.

Don't Forget the Profits.—The laborer is worthy of his hire. Some of my hives gave me profits of from £4 to £5 last season, and certainly the pleasures and joys of beekeeping were not lessened by the total drawings being relatively high.. Honey has been in abnormal demand. Profits are considerably enhanced when careful saving is practiced. Purchase only what appliances are actually necessary to run your apiary. Be economical without being parsimonious. Encourage no waste. Collect and preserve every particle of wax, and at a convenient season melt it into cakes. Discard no frame that is not really defective, and don't throw away pieces of comb, especially if they are constructed of worker cells. Special care should be taken of all shallow surplus combs from year to year, and of all brood frames not covered by the bees during the winter. In countless ways similar care may be given to tools and appliances, thus doubling, it may be their total existence, thereby raising the balance on the credit side at the conclusion of each honey season.

Don't Value Apiculture for Profits Alone.—M. Maeterlinck practically but graphically strikes the right keynote in regard to the pleasures of beekeeping: "For one who has known, studied and loved bees, a summer without them would be like one without birds and flowers." The writer felt the force of this the season when disease wiped out his apiary. At last a happy thought dawned on him, that if the mountain could not come to Mahomet, he could go to it. Perforce, as if drawn by a lodestone, he was drawn to the bees, and in no other season were so many outside apiaries visited. The study of the bee itself, its customs, habits, government, prescience, wisdom; its anatomy and physiology, form a most delightful pastime, and is well worth the interest and devotion of even the beeman to whom honey getting means bread and butter. The joys of beekeeping are manifold. What can be more delightful than watching the wild gambols of a first flight in spring, the brilliant evolutions of a swarm, the observation of multitudes of bees carrying in all colors of pollen, the steady stream of workers bringing home heavy loads of the nectar which later is converted into sweet, luscious honey?

Don't Keep Bees Without the Journal.—It should be a guide, philosopher and friend to everyone who wants to keep up with all that is latest and best in apiculture. Indeed, I feel the veteran reads it as diligently as the novice, and derives even more pleasure from its perusal. In countless ways it helps lame dogs over stiles. Its news of beedom must be invaluable to all. Dr. Miller's Answers alone are worth the actual cost of each issue. The editor's reviews, summaries, criticisms and articles, short or long, are all of great excellence. Many years ago it was known as the "Old Reliable," and this descriptive sub-title is as appropriate today as ever it was. Each successive year it renews its youth. Outside it is a thing of beauty; inside it is a joy forever. To the novice I would advise that he should make a thorough study of the articles named in the index every December, and devote any spare winter evenings to a re-perusal of those most interesting to him. The results must make him a better beekeeper. Let him read, meditate and inwardly digest; then his labor in future should prove lighter and his results more profitable, because of the acquired knowledge gleaned from wiser heads than his own.

Don't Forget a Good Text Book.—Even before investing in hives or bees the man meditating a start in apiculture should purchase one or more good bee books. The writer, after reading almost every work on bees, ancient or modern, is inclined to place "Langstroth on the Honeybee," Twentieth Century edition, and Root's latest issue of the "A B C and X Y Z" amongst the first half dozen. From the time of Virgil and Aristotle, that is before the Christian era, men have studied bees and written bee books. From then on there has been a long succession of more or less brilliant writers, and we of this

Fig. 6. The Spanish bayonet is a showy plant of tropical appearance

century reap the benefits of their labors. Authors of our time, while discarding the myths and errors of the past, the chaff, have conserved the good grain, and have added to that the marvelous discoveries of more recent years from Huber's and Langstroth's time until now. Remember the best beebooks of today contain the essence of the wisdom of many generations of "live" beekeepers and the discoveries of more than 2,000 years of patient toil.

Bauff, Scotland.

## Legalizing Co-operative Marketing

By Chilton Gano

CO-OPERATIVE marketing, in its best sense, means more than the mere banding of farmers together as an ordinary corporation. The ordinary corporation is financed by the sale of stock and must pay dividends on its capital. Its earnings thus go to members in proportion to their stock holdings, regardless of whether they actually do any business with the organization or not. Such a marketing company is apt to get along without any friction only when members actually hold amounts of stock which correspond in relative size to the business they do with the association. That is, if Farmer Smith's honey represents one-tenth of the entire amount sold by the association in a season, his stock in the corporation should represent one-tenth of its total capitalization.

But this is highly impracticable in practice, for his output this year may be one-tenth of the whole, and next year it may be one-twentieth. Yet next year he pockets one-tenth of the profits, just the same.

In ideal co-operative organizations man-power, not money-power, is what counts. That is why many States have passed co-operative laws authorizing the incorporation of new kinds of corporations which either have no capital stock whatever, or if they do have capital stock pay only a fixed annual interest on such stock instead of regular dividends. The earnings of such co-operative corporations are then apportioned back to the members in proportion to the amount of business transacted with them in the season. In other words, such organizations operate at cost, and all profits go back to the members.

The California laws permit of co-operative associations without any capital stock whatever, and most of the orange and lemon growers' associations are non-capital-stock in form. This form of organization is probably the broadest possible in principle. Members are allowed to make their own by-laws covering financing, voting power, conditions of membership, transfer of membership, etc., yet their association ranks as a corporation.

The big problem where there is no capital stock is how to get the money to start up. In California the banks know such organizations are good risks, and they usually start on money borrowed on a corporation note, which is gradually repaid from the earnings of the organization.

Where the banks are not favorable, money to build a packing plant can be secured from the members by assessment, according to their acreage or expected crop or average annual crop.

Such associations usually charge a membership fee, either of a fixed amount or graduated according to the acreage or crop of the applicant.

### Another Type

The California laws also permit another form of farmers' organization, which sells capital stock but pays earnings in part back to the members according to business transacted. This form of co-operative organization is that most often apprehended by the term. They either pay a fixed interest on capital stock annually, or they pay an initial fixed price to the growers on their crops or product, then devote a fixed amount per crop unit above this to operating expenses and dividends on stock, and then pay back any surplus above this which may be obtained to the farmers according to business transacted. The California Associated Raisin Company is of this type, paying 3 and a fraction cents to the growers on delivery of raisins, taking so many cents per pound from the selling price as their operating margin, and refunding any further surplus to the growers.

Nebraska, Wisconsin and several other States have co-operative laws authorizing this form of co-operation, but have no non-capital-stock associations.

Some of these States very rigidly define how profits shall be divided, whether the members shall have one vote each or vote according to acreage or other standards, etc.

The Texas co-operative law is of particular interest to honey producers just now because of the recent success of the Texas Honey Producers' Association. The Texas law is just a little more than a year old. In simplicity and latitude given to the associations for managing their own affairs, it compares favorably with the California law. Its principal provisions are:

That co-operative associations shall be purely local in character, in no event to extend beyond a reasonable area surrounding a town, but that they may federate with other similar associations of other towns.

That such associations shall be non-profit , passing their profits to a surplus fund or dividing their profits among members in proportion to the respective cash contributions to working capital and patronage.

That associations shall have property of not less than $500 value, which may be cash, property or notes.

That the association shall have the right to act as the co-operative selling and purchasing agents of their members only, and may, for their members, sell any and all agricultural crops, and buy machinery, supplies, insurance, and other needs.

That the members shall not be liable to the corporation or its creditors in excess of the membership shares subscribed by them, unless in the by-laws the members are made responsible for an additional amount equal to 100 per cent of membership shares owned.

### Look to the Law

Farmers planning to sell co-opertively should by all means take steps to secure proper State legislation, unless it already exists or unless they can incorporate under the co-operative law of another State and then enter their own State as a foreign corporation. Such a roundabout procedure is often resorted to by regular business corporations, and would no doubt be practicable in some instances for co-operative associations. However, legal technicalities might make it impossible, in some States, and expert legal advice should, of course, be had in every case.

The simplest way, however, in the long run, would, no doubt, be to select the form of co-operative law desired and assure its passage in the State legislature. The growing list of States which are adopting such laws indicates in general that they are good laws to have, and farmers would ordinarily, just as a matter of pride, prefer to be incorporated under the laws of their own State.

The writer would suggest that the California law is excellent in every way and a good one to copy after, when in doubt. It has proved adequate to the needs of the world's greatest co-operative marketing associations, those of the Sunkist Orange Growers and Sun-Maid Raisin Growers—indeed, has helped to foster the growth of these great federations of farmers, with hardly a question, because of its broad scope and the freedom it permits them in minor matters.

Chicago, Ill.

**Bee Laboratory at Ames.**—The Iowa State College at Ames, has recently appropriated $1,200 for fitting up a beekeeping laboratory in the basement of the new science building. There will be ample floor space for the bee work and all modern conveniences, including hot and cold water. Gas and electricity will be installed. There will be four rooms in all. The largest room will be used for the usual laboratory purposes. One will be fitted up for a wintering cellar, one for a honey and wax room, and the fourth will be utilized as an exhibit room. Professor F. Eric Millen, who has charge of the work at the Iowa College, is rapidly extending the work of his department, and new quarters are necessary.

AMERICAN BEE JOURNAL

PUBLISHED MONTHLY AT
**First Nat'l Bank Bldg., Hamilton, Ill.**

Entered as second-class matter at the Hamilton, Illinois, Postoffice.

C. P. Dadant, Editor.
Dr. C. C. Miller, Associate Editor.
Frank C. Pellett, Staff Correspondent.

**IMPORTANT NOTICE**

THE SUBSCRIPTION PRICE of this Journal is $1.00 per year in the United States of America and Mexico; 3 years, $2.50; 5 years, $4.00; in Canada, 15c extra, and in all other countries in the Postal Union, 25 cents a year extra for postage. Sample copy free.

THE WRAPPER LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec18" on your label shows that it is paid to the end of December, 1918.

SUBSCRIPTION RECEIPTS—We do not send a receipt for money sent us to pay subscription, but change the date on your address, which shows that the money has been received and credited. In case of errors, please write us.

(Copyright: 1917, by C P. Dadant.)

# THE EDITOR'S VIEWPOINT

## Transferring From Box-Hives

Bulletin 961 of the U. S. Department of Agriculture on the above subject is at hand. This is one of the most useful publications ever issued by the Department, for the reason that there has been more waste in this matter of transferring than in any other question concerning beginners. This Bulletin is most important in instructing beekeepers who are not yet using the modern methods, but who have kept bees in boxes or gums. This Bulletin should be distributed freely among them.

The different methods of transferring are also very necessary where bees have been in modern hives without the necessary guides to secure straight combs in the frames. A hive with movable frames in which the combs are crooked and run from one frame to another is much worse than a box hive for any manipulation, and is also more difficult to transfer. Let all those who are troubled with crooked combs or have bees in box hives send for this Bulletin.

## European Foulbrood

"The Control of European Foulbrood" is the title of Bulletin 975 of the United States Department of Agriculture. This is by Dr. E. F. Phillips, and, like everything that comes from his pen, is practical and to the point. European foulbrood was denominated "bacillus pluton" by Dr. White, the bacteriologist whose studies of bee diseases are now accepted as authoritative and conclusive by scientists the world over. The name "European" was given only to differentiate it from the ropy foulbrood which was called "American," but both diseases undoubtedly exist on both continents.

By securing this Bulletin, together with Bulletin 442, "The Treatment of Bee Diseases," by the same author, Dr. Phillips, 1911, the beekeeper will have the benefit of all the knowledge of the subject acquired in the past 15 years through experiments and the gathering together of information at our Capital.

Another Bulletin, No. 671, just now appearing, has been delayed by an error in the transposition of two cuts, illustrating the appearance of combs containing larvæ dead of European and American foulbrood. This Bulletin is entitled "Diagnosis of Bee Diseases by Laboratory Methods." It is by A. H. McCray and G. F. White. It will interest the bee inspectors and the better informed class of beekeepers. It gives short and pointed statements on the characters of European and American foulbrood, on sacbrood and on Nosema apis. The reputation of the authors vouches for the correctness of the statements.

## International Fraternity of Beekeepers

It is out of the province of a bee magazine to touch the present burning question which is constantly in the thoughts of every human being. But the flood of enthusiasm which reaches us in the shape of numerous private letters from across the seas needs public acknowledgement. For this reason, we give place in our columns to a short, typical letter, not written for publication, but so expressive of the popular sentiment among our allies that we feel sure its author will pardon us for giving it publicity. It is from no less a man than the editor of the oldest existing bee periodical in the world:

"Mr. C. P. Dadant:

"Dear Sir.—At the time when your brothers and your sons are with us, mingling their valiant blood with that of the French, for the defense of right and liberty, I, who have had already terrible trials, cannot help thinking of the American fathers, mothers and wives who have dear ones every day exposed to death or wounds. I feel how much my anxiety would be attenuated if, in a similar situation, I knew that there were near the loved ones some tender-hearted friends who would bring them, whether wounded or healthy, a little enjoyment. Near a friend, they would recover a touch of the family life.

"For this reason, permit me to say to you, dear sir, that if you have a relative, a friend, in this war, write him that he will find in my home a family who will try to help him forget for a few moments the remoteness from his own people, so painful to the one who is fond of family life.

"Please accept, my dear sir, my heartiest good wishes.

"M. SEVALLE,
"Editor of L'Apiculteur,.

"Paris, France, July 7, 1918."

Hundreds of similar letters have come to us across the seas, from heroic, bleeding France, from unrelenting Great Britain, from warm-hearted Italy, as well as from smaller allies and neutral countries like Switzerland. But none of them express their hearty good-will any better, or in more concise words, than the above.

Our hearty thanks are extended, in the name of American beekeepers who have sons at the front, for those numerous friendly offers as well as for the warmth and enthusiasm expressed towards our Nation.

Fellow-Americans, whether you are beekeepers, farmers, mechanics, professional men or merchants, you are building, perhaps better than you realize, a wonderful brotherhood with the rest of the human race. The lavish manner in which the Star-Spangled Banner is pouring into the conflict her money, her food, her blood, for the defense of an ideal and the crushing of the most ruthless militarism since the days of Attila, will remain to her credit for centuries to come. Neither should we forget that, aside from a few traitors, there are among us thousands of descendants of the Central Powers who are doing their duty to the country of their adoption with as much patriotism as any of us.

When ruthlessness is crushed and peace again comes, let us hope that we may see international compacts between all the nations! May I live long enough to attend an international congress of beekeepers, in which all ill-feelings will be forgotten and the countrymen of Huber and Bertrand, of Cheshire and Cowan, of Girard and Bonnier, of Maeterlink and Wathelet, of Barbo and Visconti, of Kandratieff and Zoubareff, of Berlepsch and Dzierzon, of Langstroth and Quinby, will meet to discuss their interests, their discoveries and their methods, establishing a "Sainte Alliance" of honey-producers.—C. P. D.

### Honey in New South Wales

A. Shallard, in the Australasian Beekeeper for June, page 230, writes:

"The speculators are holding 1,300 tons of honey in Sydney, and the beekeepers are crowded out of the ships by them. We should have precedence. Fight for it."

The inability to ship honey across seas is helping enhance the price in Europe. When transportation is released, after the end of the war struggle, there will be a great readjustment of prices in all sorts of produce. Keep it in mind.

### Iowa State Apiarist Report

The printed report of F. Eric Millen, State Apiarist of Iowa, for 1917, is before us. It is a book of 89 pages, containing a short statement by Professor Millen, as to the work accomplished during the year under his supervision, a copy of the State law on beekeeping and diseases, and copies of the different addresses delivered at the State Beekeepers' Convention held in Des Moines December 4 and 5, 1917.

Professor Millen gives great praise to his predecessor in the State Apiary work, Mr. Pellett. We can assure the beekeepers that Mr. Millen himself is also a worthy worker, and that Iowa was fortunate in securing his services. Iowa beekeepers can secure this work by joining the State Association. Address Professor Millen at Ames.

## "Queen" or "Mother Bee"

By Robert Sparks Walker
Editor of the Southern Fruit Grower

SINCE we have been engaged in the world war we have discovered in our own midst many things un-American and undemocratic. In addition to the task of the Americans at home to back up our gallant men at the front, we must also work faithfully to thoroughly Americanize America.

It is not believed by the best thinkers today that democratic nations would go to war. But from history we have learned that countries ruled by kings, queens, dictators, emperors, sultans, etc., have brought many bloody wars, until the world has, almost as a unit, condemned such forms of government, and it is a great day for the world that such has been the case. To Americans the names "King," "Queen," "Emperor," etc., will ever be held in contempt. Henceforth, no fruit, or any product, can be named or designated by these words and carry with it the suggestion of a high quality. So every name that is un-American and which will bring contemptible utterances should be forever stricken from our vocabulary.

For this reason, I am in favor of immediately changing the name of the "Queen" bee to that of the "Mother Bee." In fact, I move the beekeepers of America today that the change be made.

This bee now merits a better name, and the sweetest and best name in the English language is "mother." There is no other name to equal it, and it is thoroughly American and will strengthen our democracy; whereas, on the other hand, the frequent or rare use of the word "queen" suggests autocracy, the very thing that America and the allies are giving their all to crush.

Chattanooga, Tenn.

This suggestion is quite proper, but there are two obstacles in the way. The first is the long established habit, even in our kingless republic, of calling the only fully developed female of the beehive "queen." The first name given her was "king," because they did not know her sex, and because they noticed the great love of the bees for this large bee and the care with which it was surrounded. It was only in 1609 that Butler, an English naturalist, discovered that she was really a female. But long after that, some authors persisted in teaching the existence of a "king" in the hive. We have before our eyes a book by M. J. Simon, dated Paris, 1758, entitled "La Republique des Abeilles," in which the existence is asserted of both a king and a queen in the insect republic.

Hamet, the founder of the now oldest existing bee periodical, L'Apiculteur, tried ineffectually to change the term of "queen" to that of "mother bee." In his book, "Cours D'Apiculture," he carefully avoided the use of the word "queen." Hamet was an ultra-progressive politician, even though he was a very conservative beekeeper, and after the fall of Napoleon III, during the Franco-Prussian war of 1870, he again launched a campaign against the use of the word "queen." But, nevertheless, his magazine, now, many years after his death, is still using the term "queen" promiscuously with that of "mother bee."

The second difficulty in the use of the term "mother" is met when we speak of a virgin queen. We cannot say "virgin mother," for the two words are contradictory. We must then follow Hamet and speak of the unfertilized queens as "virgin females," or "young females." For these two reasons we believe that the word "queen" will remain in popular use.

Human beings are fond of pomp, dignity and ostentation.

That is probably why our Canadian neighbors, who are practically living in a republic, affect a great love and excessive respect for a reigning family which has less political power than our President. Is it not probable that constitutional kings and queens will continue to reign, with constantly decreasing power, but with much respect from their so-called subjects, as long as they live decently and behave in a democratic bourgeois-nobility way, an expensive but ancient institution? If so, we can tolerate the "queen" among bees, for she is certainly a constitutional sovereign, with no power whatever, but with a great deal more usefulness to her people than any king or queen that ever existed, for she is indeed the "mother," and the love with which her bees surround her shows that they appreciate her usefulness.—Editor.

### Sugar for Feeding

In response to numerous inquiries, we wrote to Washington to find out just how much sugar the beekeeper would be allowed for feeding his bees.

According to their ruling a full allowance is made for feeding bees. In order to obtain this sugar, you should apply to your local food administrator for a certificate, or in case he lacks it, write to your State Food Administrator.

A peculiar part of this ruling of the department is that it stipulates an allowance of 50 per cent of the amount used during the corresponding period of last year by the **manufacturer of honey.** Why add insult to injury, when the beekeepers for years have been trying to convince everyone that there is no such thing as manufactured honey. The pure food law does not allow it, anyway.

# SCIENTIFIC HONEY MARKETING

## Facts Which Are Important in Evolving a Plan for Practical Honey Selling

BY NELSON W. PECK

THE first important problem which looms up before most beekeepers is generally that of production. In the solving of this and in the attendant details, so much time and energy are usually consumed that little if any intelligent effort is ever made, except in exceptional cases, toward scientific selling.

Taking for granted that the product in question is of its kind as good as any, whether white clover or buckwheat, raspberry, fireweed, alfalfa, sweet clover, sage, orange or aster, let us turn our attention, while there is yet plenty of time for reflection, to this subject of scientific marketing.

Whenever anyone has any more of anything than he can use himself, whether it is doughnuts or cobblestones, someone, somewhere, always exists who could use it if it can be delivered to him at the right price. The price depends largely upon the quality of the stuff, how much of it there is, and how greatly the consumer needs it, or thinks he needs it. The primary object in scientific marketing is to find this necessary someone, tell him that you have just what he needs and at what price he can obtain it. This process is called advertising. It may be accomplished by flaring notices in conspicuous places, which vex the mind and are read and forgotten and which are expensive and hideous. Or it may be accomplished by venders or mongers yelling at the top of their lungs, "Extra! Extra!! All about the Blank Murder!!! Or by quiet solicitation from shop to shop and house to house. But no matter how we choose to go about it, some form of this advertising is absolutely necessary and must be accomplished as effectively and cheaply and unobjectionably as possible. Most long-lived business firms have found out that a thoroughly satisfied and enthusiastic customer is the cheapest and best advertisement obtainable. So be it, it's very, very necessary to obtain this first customer and his comrades.

Let us consider profoundly this subject of advertising, one of the oldest arts of Mother Nature herself. Have you ever walked beneath an apple tree at blossom time and smelled the dewy fragrance of the bursting flowers and looked above you into the busy market place among the showy pink and white petals? 'Twas Mother Nature's advertising that reached you; but it was meant for the bees, and the chances are, unless you got out before them, that they were there in numbers long before you. Yes Nature has something for sale, both pollen and nectar, and she proclaims in a quiet but effective manner that the nectar is sweet and plentiful; can't you smell it, and see the great mass of bloom? Yes, all this is for sale, there is plenty of it, it's good and the price is but a few grains of pollen, which is generally well paid. We can always look to Nature for guidance. She is always before us and about us and her activities are numerous and complex enough to furnish us an inexhaustible source of examples and ideas. Like Nature, we have something for sale, and we should both show its abundant beauty and proclaim its useful attractiveness. We may show it in shop windows and proclaim it by labels and well-worded cards in those windows, or we may show or display it at some house door and proclaim its virtues and usefulness by word of mouth alone. Or, better yet, by both display and word of mouth and sample. The idea of samples is very agreeable and effective and though seemingly expensive often produces results warranting all expense. Is your honey unusually good? What need, then, to blare or bawl it out? Let the good housewife, or, better, the husband, or better yet the children, try it. Their tastes will soon tell them if it is to their liking, and they'll want more. Oh, yes! the label on the bottle tells where they can get it—at So-and-so's grocery.

And just here is the grain of wheat in all this bushel of chaff. Most producers of honey begin their selling efforts at the nearest corner grocery. This is an absurd blunder, which works injustice to the poor grocer, injury to the apiculturist and unfairness to the prospective consumer. Scientific marketing directs its first efforts at the consumer. Find those someones who are looking for just what you have for sale, and don't know it. They will find the grocer all right, don't worry about that, and he will find you. But cultivate the love and kindly respect of the consumer first of all. Then will the grocers, and finally our ever necessary and useful friend, the middleman hunt us up and do our bidding, and that with right good will. Bear this in mind, you do not merely sell honey to the grocer in pint jars or jelly glasses or five or ten-pound pails; you sell this honey to the great mass of someones scattered among the people. For this reason always put your name on the label and then, though your customers all move to the North Pole, some grocer will beg the privilege of selling to them for you the honey which you will produce.

Among the best methods of obtaining customers are the following:

1st. For the rural districts and small villages. Start out some afternoon about 3 o'clock with a few dozen ten-pound pails filled as full as you can get them, so there will be a few "tastes" in each pail more than the net weight. Be sure **not** to take along anything smaller than five-pound pails, and preferably only the larger size. Now, the matter of price must be settled in your mind before you approach your first customer. This is affected somewhat by the competition you have, the demand for the honey and the amount available. We shall suppose that at this time when you are starting out to sell your honey that you could get 15 cents per pound for it in 60-pound cans is about 14 cents per pound, road station. Then let us figure. Fifteen cents per pound in 60-pound cans, cased, at the present price of cans is about 14 cents per pound, net. So the ten pounds of honey without the pail is worth $1.40, and the pail is worth at present 15 cents, which makes the cost to us of the pail and honey $1.55, and to this we must add 10 per cent for ourselves, 15 per cent for the jobber and 20 per cent for the grocer, which brings the price of the honey, freight included, up to around $2.40 to the consumer. But, you say, "why charge the grocer's and jobber's profit when grocer and jobber never handled the honey?" Yes, but my dear friend, **you can never eliminate the jobber and grocer,** for if you do sell direct to the consumer, which you cannot do if you are in any way a large producer, you are then both jobber and grocer yourself, and will in time find that **you cannot do their work without their pay.** So, for pity's sake, right at the start, don't fiddle your crop away and fool yourself, but sell at a scientific price; and, if you can't do that, either buy up your unscientific competitors or get into some better territory, or else some business where there are more scientific people. So my advice to you is, "sell your honey in the scientific way at the scientific price." You'll be thought more of in the end, and you'll get to Heaven just as quickly as though you half way give your stuff away. Better go give it away scott free with no strings to it, if you feel inclined, but don't half way give it away. Don't half way do anything.

So let's go up to the first house we come to (don't skip any) with a smiling, good-natured, patient face, a 10-pound pail of honey neatly labeled and a price scientifically premeditated. We'll shut the gate behind us, step up to the door, knock gently but briskly and say to the one who comes, "Does anyone here eat honey?" at the same time holding up the pail.

"No, we don't care for any."

"All right, thank you; sorry to have bothered." Don't argue; it doesn't make friends and it doesn't pay.

But if he is interested at all and

makes no move away from you, then quickly pry off the lid and show him how thick it is. Um! Just extracted and still warm. Fresh honey just from the clean combs; all honey, nothing but honey, with only the indigestible wax removed. Explain to him (or her) that honey is only 30 cents per pound and wax is 40 cents, and that is one reason why extracted honey is cheaper than comb honey. And what good is the wax in comb honey? It is indigestible and perhaps irritating to the intestines. Don't we get enough coarse stuff now with our war bread and all? Be sure to give him a taste; a good big taste, on a clean spoon. He will furnish the spoon all right, or perchance one of the children might be glad to taste it and he will get the spoon.

In general women don't like honey and won't use it. They buy it only for children or husband. So, remembering this, if wife comes to the door and husband comes in sight, get his attention or the children's first of all, for they always like honey and, if they once taste it, and mamma has the money, your pail is just about sold. It's the little things that count, and especially children where honey is on hand. When the honey is sold the remark can often be made to the good wife that if she will use one tablespoonful of honey to two loaves of bread instead of sugar in setting yeast the bread will keep moist longer and the yeast will rise more surely. One tablespoonful of honey is a small amount, to be sure, but its use requires honey in the house, which implies demand, and that is what we are desirous of creating.

It is not necessary or advisable to be a knocker; but, if such substances as Karo or maple syrup are mentioned it may be explained just what "Karo" is and why it is so cheap. It's made of corn, that's true, and corn is as pure as nature made it; but sulphuric acid is not pure and wholesome, and perhaps limestone is not either. And Karo is made of these things, too. Why, even the bees, as fond of sweets as they are, in all my experience would never even go near "Karo." Pure maple sugar is wholesome when made in a cleanly way. When actually pure it is seldom cheaper than honey, and also seldom competes with honey because it comes at a different season.

2nd. For the city it seldom pays here to canvass house to house. The game has almost always been overworked by magazine artists, sewing machine men and the like; and Mrs. Housewife is sick and tired of running to the door. Also in the city people buy in smaller quantities. In the country, when a smaller quantity is asked for, the customer should be directed to the nearest reliable grocer. Also, if only one canvass is to be made each year, people who buy honey should be told that their grocer will handle the honey for them if they need more later. But in the city soliciting doesn't pay. Yet placing free samples on the front door knobs can often advantageously be done. If the children get them, so much the better. But all free samples distributed at random should have a seal of paper pasted over the cap so that the bottle cannot be opened without breaking the seal. In fact, now that the kaiser's agents are said to be distributing ground glass so freely in our canned foods, this idea is not amiss to all our honey packages.

Free samples can also be given away right at the grocer's in connection with a good window display. They should contain 3 or 4 ounces, net, in a labeled glass jar. But your grocer, unless watched, is apt to give them away in bunches, sell some, and appropriate the others. The grocer should be made to appreciate their value to him and the necessity for using each one efficiently. Perhaps he will advertise in the newspaper one free sample of honey with each dollar purchase at his store on a certain day. That is one very good plan. In connection with the window display in the city, the one-frame glass hive with some pretty golden bees is very useful to attract attention. A few of these hives will be a good investment. If for no other desirable quality, the golden bees are invaluable here, for on a comb they show up wonderfully.

As a good label is necessary to scientific selling, the discussion is in order. First of all, most people do not know the picture of a honeybee from a humbug, so why disfigure our labels? Also why put pictures of roses on our labels? Do roses secrete nectar? And straw skeps! For the love of common sense, forbear! Be original! If you cannot do better, just print "Honey" in great big red or blue letters in nice clear type, so people can see it and will believe it and buy it and go their way rejoicing. All labels should show the net weight of contents and the class of honey, and if possible the principal flowers from which contents were gathered; also, directions for melting in case of granulation, and the producer's name and address.

In selling to the grocer the grocer's profit of at least 20 per cent should be deducted from your retail price. It costs most grocers this to pay rent and expenses and make a moderate profit.

I advise all honey producers to sell for cash only, R. O. G. If you can't do this, call in the jobber and give him his 10 or 15 per cent for handling the credit risk.

But remember, you can't be producer, jobber, grocer, consumer and all. You've got to stop somewhere if you are to make money. Render unto Caesar the things which are Caesar's and unto the jobber and the grocer the profits which are theirs, and unto the consumer the best grade of pure honey you can produce.

Yakima, Washington.

---

# My Neighbor's Garden

By C. D. Stuart.

It was summer. I had just gone to the apiary to swarm, artificially, the colony containing my new ten-dollar breeding queen, when bridal-like draperies above flying feet all unhampered by insignia of the sex suddenly appeared among my beehives.

The apparition proved to be our new neighbor, Frau Clara, in the perspiring flesh. We had met at her artist husband's concert only two months before. The audience was on its feet clapping for a final encore when she spied me.

"Ah!" she cried, "I know you. You are the gen-tle-mann with the beans." And Herr Professor, still seated in front of the Club's baby grand, smiled dutifully in my direction.

The crowd around the platform parted, and those ladies who had not already discovered that I was the only male present, were now eager to observe one possessing money. Instinctively my hands sought refuge in my beanless pockets.

"Madame," I answered, "I haven't a single bean."

"Oh, yes; little yellow beans." Her tone was most insistent.

Nectarivorous and carnivorous "beans"

Could Frau Clara have confused me with the vegetable man, and was she taking advantage of the occasion publicly to rebuke me on the size of my produce? I wondered. Or, wait! she had specified **yellow** beans. In **her** tongue, might not "bean" signify a gold coin? The situation was perplexing; but I stood my ground.

"I have no beans, neither little beans nor yellow beans. I am an apiarist," I concluded, with conscious pride.

"Do I make meestake?" Frau Clara appealed to the women. "The gen-tle-mann he look always **so,**" holding up her arms as though inspecting at close range a small platter.

"She means bees," volunteered a recently initiated neighbor.

"Yes," beamed Frau Clara, "beans."

And, having reached the end of our conversational rope, the Magic Girl came to the rescue by inviting them to come to see our "beans," and taste our honey. Whereupon Herr Professor beamed right out loud:

"You haf piano, yes? Then I come und blay for you."

So my good little bees had not confined their social activities to the visiting of flowers, and as we passed out we were followed by envious glances. For Herr Professor had arrived. The ladies of the Club no longer wondered if he were in America to avoid war duty, or had been banished for political reasons. Also they ignored the report that his marriage to Frau Clara had been sanctioned by neither Church nor State. He had made their piano speak to them in the one universal language. That was enough.

"On the day before Friday," bee fixtures, catalogues, magazines and a stack of beeswax were concealed in the basement; the piano was dusted, tuned and garnished with flowers; a square of honey placed on the best plate, the choicest amber mead set out; and, last of all, our bee uniforms regretfully exchanged for citizen's clothing. No sacrifice of personal comfort was too great in honor of Europe's favorite pianist.

It was quite late in the afternoon when at last we heard animated conversation, interspersed by intermittent howlings. Soon Frau Clara appeared, followed by Herr Professor tenderly carrying a small brown dog.

"Ve do not like your beans," she began, excitedly. "They vill not let my leetle dog eat. Every day they come and take his dinner—an' meat so exbensive! He get nothing. He starve. He is sting. He cry."

"Impossible!" I told her. "Bees don't eat meat."

"Yellow beans," she insisted.

"Perhaps it's yellow-jackets," suggested the Magic Girl.

"Of course," I agreed, relieved. I'll show you. They eat bees, too!"

So I brought from the apiary a fly-trap filled with yellow-jackets that had been captured through the lure of a meat bait, a piece of which still remained in the trap. I also pointed out a honey-bee which the enemy had dragged in. Then I went out again and tapped gently on the side of a hive as I had seen the birds do at breakfast time. A bee peered inquisitively through the opening. At the second tap it came out and crawled up the front of the hive. In a second I had the insect by the wings and pinned alongside a yellow-jacket, where even Frau Clara could distinguish, though reluctantly, the carnivorous from the nectarivorous "bean."

Frau Clara in hastily improvised bee costume
(Photograph by W. B. Dickinson)

Herr Professor radiated smiles, and, much to the disappointment of the Magic Girl, he discarded the promised classics and improvised on the piano the wierd things our beans had done to their dog, while the latter continued to howl its own version of the affair. But only with the serving of the amber mead was Frau Clara fully convinced. She grew confidential. It seemed she had always lived in a "beeg city, Vienna," had never owned pets, except "von leetle cheeken," and she would so love to have some beans, for "such good drink" she "nevair" tasted, so much, "what you call? Keek" (kick.)

It was the next morning that Frau Clara appeared, wraith-like, in my apiary to tell me that their garden was full of beans, and Would I give her a box like mine, "so they go in?" I handed over the hive just prepared for my own use in the artificial swarming project, and, like a true beeman, abandoned work to be in at the hiving.

Counting the few remaining "Beans"
(Photo by John R. Douglass)

Old "Countree" method of catching bees

When I arrived the bees had been settled in a cluster on the limb of a young fruit tree, presumably by the rhythmic tom tom of the valiant Professor, who still knelt just beneath, the baby grand having been temporarily replaced with dishpan and hammer, "so like old countree," and his concert attire, apparently for the garb of a hobo.

The bees were indeed yellow and of a rare, though singularly familiar shade. I examined them more closely, then hastened back to my apiary and opened the hive containing the new queen. My suspicions were correct. She was gone, together with most of her subjects, whether swarmed, absconded, abdicated, or merely enticed by the witchery of Herr Professor's music, was of small matter. It was the thought of my finest colony at that moment being made comfortable in my neighbor's garden, and in the very hive I myself had provided, that rankled, and, involuntarily, strong, appropriately-worded sentiments escaped me.

"Are you stung?" called out the Magic Girl, sweetly.

"Am I stung!" I began, then remembered to restrain myself, as I continued grimly to count my few remaining "beans."

Los Gatos, Calif.

## The Maintenance of Colonies From the Close of the Honey Flow One Year Until Its Beginning the Next.

By Geo. S. Demuth, Apicultural Assistant, Bureau of Entomology

(Continued from August issue)

This paper was prepared as an address, and not as an article for publication. This will explain certain passages in which the meaning may not be quite clear if the reader attempts to interpret it as a paper for publication.

### Food

**Fall Food**—The most important of these requirements is food. A colony well supplied with stores at all times will stand a tremendous amount of abuse in the other two requirements. If an abundance of stores is present during late summer and early fall, brood-rearing does not cease, even during a dearth of nectar, but if stores are meager in quantity at this time, brood-rearing may be entirely suspended. It should be noted that, when there is no fall honey-flow, the winter colony must be reared in opposition to the instinct of the bees, which at this season is to rear but little brood during a dearth of nectar. If ample stores are not in the hives in August, they should be supplied without delay, if the beekeeper expects to have a colony in condition for winter.

**Winter Food**—During the winter not only quantity but quality of stores is important, especially if the bees do not have frequent flights. The practice of beekeepers shows a decided tendency to supply in the fall not only enough stores for winter, but also enough to carry the bees through the heavy brood-rearing period the next spring. Any deficiency in winter stores should be supplied not later than some time during October, in this locality.

**Spring Food**—During the third period, the stores are being so rapidly converted into bees that there is danger that many colonies will run short and curtail brood-rearing just at the time when the beekeeper can least afford it. I have seen many failures here and could cite tremendous losses, even among experienced beekeepers, resulting from a shortage of stores during the month of May. Unfavorable weather conditions often prevail during this period and the beekeeper, thinking each day that the next will bring better weather and permit the bees to replenish their depleted stores from the fields, is easily led to wait just a few days too long. To purchase large quantities of sugar to tide over the period just before the honey-flow, when conditions may change even before he has had time to feed it, tests the metal of the beekeeper. Too often he goes through such a period with a feeling of security and does not appreciate the situation until after the mischief has been done. To cite one illustration of what I mean here, I saw at one time during the latter part of May a series of six apiaries in which about 10 per cent of the colonies were actually starving and the entire lot of about 600 colonies was practically ruined for the season, because the beekeeper thought they could pull through without help. Here a 600-colony man waited a few days too long before he began to feed. The honey-flow that followed was a 100-pound per colony flow, but his 600 colonies furnished an average of only about 10 pounds per colony. This is but one of many such instances that have come under my observation, in addition to some exceedingly unpleasant recollections of similar personal experience, which has helped to drive home this important lesson. It is not a question of a supply of food in the hive merely sufficient to keep the colony alive during a period when nectar cannot be obtained from the fields, since long before there is actual starvation, brood-rearing is greatly reduced, or even suspended, and some of the immature young are carried out of the hive.

### Protection

**Fall Protection**—The protection afforded by the ordinary single-walled hive is usually sufficient during summer and early fall, since during that time the protection needed is largely protection against rain and cool nights or robbers and other enemies. In some localities shade is desirable during the hot days of summer to protect the colonies from extreme heat.

**Winter Protection**—It has been shown that when the temperature of a colony of undisturbed, broodless bees is above 50 degrees F., the bees are quiet and their temperature drifts with the external temperature. A temperature of 57 degrees F. and above is maintained within the cluster of bees throughout the winter. This temperature is maintained during cold weather by an insulating crust of bees on the outer surface of the cluster and heat generation by muscular activity within the cluster. As the temperature of the air surrounding the cluster goes downward below 57 degrees F., the activity of the bees within the cluster must be increased in order to maintain the required temperature of 57 degrees F. and above within the cluster. This greater activity makes it necessary that the bees doing the work consume more stores to supply the source of the greater energy expended. More rapid consumption of stores results in a more rapid accumulation of feces, which the bees attempt to retain until a flight permits voiding them outside the hive. The presence of feces in large quantities acts as an irritant, causing activity in addition to that required to maintain the necessary cluster temperature, thus greatly increasing the energy expended and stores consumed. This results in a constantly increasing accumulation of feces until the bees are relieved by a flight in the open air. Poorer grades of honey and especially honeydew honey, when used in winter, result in a more rapid accumulation of feces for the amount of energy expended than do better grades of honey or sugar syrup. During the winter, therefore, except when the external temperature is between 57 degrees F. and 69 degrees F., bee energy is being expended in response to one or both of two irritants—cold and accumulated feces. Since to survive the winter the bees must live more slowly than they do during the summer, the problem of the beekeeper during this period is the conservation of the energy of the bees, and he must seek the solution in two directions—that of better food, if possible, but chiefly that of protection against low temperatures, that is, lower than 57 degrees F.

Part of the apiary of the Agricultural School at Rome, Italy; Prof. G. Montagano in charge

This added protection may be supplied in the form of winter packing-cases or double-walled hives, and a windbreak (outdoor wintering), or a winter repository (cellar wintering). In the light of the temperature requirement of the bees, the winter protection usually given is woefully inadequate.

**Spring Protection**—When brood-rearing begins, that portion of the brood-nest occupied by brood is kept at brood-rearing temperature and later, when there is brood in most of the combs, the temperature of the entire brood-chamber is usually about 90 degrees F. Under these conditions thin-walled hives permit a rapid loss of heat when the outer temperature is low. For this reason the winter protection is usually left on the hives until late in the spring. Protection of the entrance against robbers is also important during this period.

### Room for Expansion of Colony Activity

**Fall Room**—The storage of food as well as brood-rearing comes in waves and usually at about the same time. If the hive is not large enough to contain the maximum of both at the same time, it may be necessary that the beekeeper provide additional room during a minor honey-flow, either during the fall or spring. When the hive is too small for both stores sufficient for fall and winter and for adequate brood-rearing during late summer and early autumn, it results either in colonies short of stores for winter or colonies for winter greatly reduced in strength, or both.

**Winter Room**—When brood-rearing space and storage space do not interfere, there is probably no advantage to be gained by an excess of room, and during the winter broodless period it may be advantageous even to reduce the size of the brood-chamber to fit the colony.

**Spring Room**—During the heavy brood-rearing period of spring, the strongest colonies may need more room than that afforded by a single hive-body, and it is at this time that additional room is of great importance, because of the bearing it has upon both the production of bees and swarming. The problem is usually solved either by adding an extra hive-body with empty combs or by expanding the brood-chamber of the stronger colonies into unoccupied space of colonies less strong by what is known as equalizing the brood. This is done by exchanging combs of sealed brood from the stronger for empty combs from the weaker colonies.

### Providing the Three Requirements

It would seem that one of the greatest needs of the beekeeping industry is some stimulation to a better system of supplying any deficiency in these three fundamental requirements early enough to prevent loss. There are two extremes of method in supplying these deficiencies. One is to watch the colonies daily in order promptly to detect their needs and then to supply each colony as the need develops. The other is to supply the three requirements, if not already present, for long periods in advance.

The former is the method usually used by the beginner. It involves a tremendous amount of labor, constant attendance in the apiary, and is largely responsible for our conception of the complexity of beekeeping. The latter method greatly simplifies the work, substitutes system for too frequent a lack of system and makes possible the operation of outapiaries. It may, however, sometimes involve the giving of something that could have been omitted without loss. A fall honey-flow may take care of the food requirements of the colonies at that time and a large hive may furnish enough room for both incoming nectar and brood-rearing. A mild winter may make it seem to have been unnecessary to pack the hives so well or to have furnished shelter from the wind, and, finally, the maple, dandelion and fruit bloom may supply an abundance of food for brood-rearing during the spring. But we cannot be sure of any of these things and cannot afford to take any chances of the requirements being supplied in this way.

When food is given in advance, it is stored, not wasted, and remains in storage until needed. We can also give protection for winter and room for expansion the next spring just a little ahead of the time they are needed. It is even possible as an emergency expedient, in localities having a single major honey-flow, to prepare every colony at the close of any given honey-flow for the entire period of preparation for the honey-flow the next year, or a period of ten or eleven months. Most of us would be surprised on our return ten months later to find how well the bees have been able to take care of themselves without us, if they have an abundance of stores for every possible need, an abundance of protection against the most severe winter the locality may afford, and an abundance of room for expansion before the honey-flow the next spring.

There is a growing tendency among beekeepers to use a shallow extracting super or hive-body filled with honey, above the regular brood-chamber throughout the year, except possibly during the honey-flow. Its presence throughout the interval between honey-flows, together with adequate winter protection, leaves little that the beekeeper can do toward having the colonies strong in time for the honey-flow.

## The Winter Problems of the South

By J. J. Wilder

Up on the mountains in the section of our country with high altitude, a little winter care might be of some value, as it is much colder and there is more snow and ice than in the lower country, where the average temperature is from 50 to 70 degrees during the winter months. But even there my observation leads me to believe that special winter preparation is not necessary.

I have never seen any colonies of bees frozen, except very small, neglected swarms. Nor have I seen many dead bees fall from the clusters during winter. Many times I have wintered a pint of bees in its hive on summer stands. So, actual winter losses are exceedingly small.

A few times I have spread brood a little too early, and this resulted in just a small loss of brood.

I kept a house apiary for a number of years where the bees had the best of winter protection, with results to the reverse. I don't know why. They consumed more stores, dwindled more and were far behind the others in the same yard out in the open.

The same thing that will keep bees in thriving condition in spring, summer and fall will keep them through the few winter months.

Many times more bees or colonies of bees die in the fall and spring than during the winter months. Every beekeeper knows this is true. So there is something far more vital than the average beekeeper would

Group in attendance at the Beekeeping Course under the supervision of Prof. Montagano call "wintering," or "special preparation of packing and protection of hives, etc."

Let us look into all the winter problems we need to worry ourselves about.

Of course, bees should be kept in good hives all the time, and should have plenty stores when it is a long time until the next honey flow, winter or summer.

They should be requeened when they need it and not when it is too late to save the colony or have its good service during a honey flow. These are "all the time" problems.

A majority of beekeepers leave the supers, hive bodies and all storing apartments on the bees over the winter months. This is a great mistake, wherever it is practiced, and should be abandoned.

It is too much space above the bees. Better by far would it be to have all the brood, bees and plenty of honey in one single body and a good cover on it. Thus they have snug and contracted quarters, such as they need for their good.

When 8-frame hives are used it would not be amiss to leave one set of shallow extracting combs on, and they should have more or less honey in them. Bees have to maintain animal heat to exist, and a great space above them would be harmful.

The first zero weather will kill all scattering moths, both large and small. Then they are all right until time to put them back on next spring. If combs are removed and stacked up in the yard and covered just before the first freeze in the fall, they will need no special treatment. If much earlier they should be stacked up straight in high stacks and covered up well with straight water-proof covers, and all cracks daubed with clay, so as to be as near airtight as possible. Then give each stack a good, strong sulphur smoking, from the bottom, for not less than 10 minutes; then close up well. Or you can set in at the top of each stack a very small, flat vessel of carbon disulphide.

Cordele, Ga.

# Winter Protection of Bees

By T. K. Massie

REGARDING the subject of winter protection, which of late has been receiving considerable attention, I wish to offer a few thoughts, as they, from long experience and observation appear to me.

The Government plan of outside dual winter cases, while all right for bees in thin-wall hives after the bees are placed in them, is so very costly that it will never be adopted by even one per cent of our farmer-beekeepers. The first cost of material and labor in their construction, the time and labor required to pack in the fall and unpack in the spring and the storage room and labor of storing them during the summer are so very great that few beekeepers will ever try the plan. Farmers do not have the time for all this kind of work. The plan of using two hives packed in the same case where the entrances are close together and face in the same direction is not practical, because the stronger colony draws the bees from the weaker one, just the opposite of what we would like to have take place.

The Demuth-Pritchard plan of using two or three hive-bodies or two hive-bodies and a super for an outside case and an inside case of ⅜-inch lumber made large enough to hold six frames standing on end, which, of late, has been referred to and commented upon in "Gleanings" and illustrated in the American Bee Journal on page 13 for January, is open to several objections. With this plan the first cost of material and labor in making the cases, the time and labor spent in "fussing" with the packing and unpacking, the storage room, time and labor spent in storing the inner cases in summer and the storage room, time and labor required to store the surplus frames—the two or three frames removed from the brood-chambers—is too great. As a rule farmers do not have the time to spend in doing so much extra work, neither does the average beekeeper.

Four of the best colonies of bees I ever saw are owned by Mr. Ayres Hill, a farmer who lives four miles northeast of Princeton, our county seat. Mr. Hill knows nothing about bees and keeps them absolutely on the "let alone" plan. I inspected his bees on the 18th of July. I found them in old box hives made of 1½-inch lumber, 18 inches wide and 27 inches tall. The bees had coated the entire inside surface of the hives with a considerable thickness of wax and propolis. The condition of the bees proved that they had wintered perfectly the winter before. They were "boiling over" with bees. There seemed to be more than the equivalent of two large swarms in each of those hives. Our honey season has been rather a poor one, but each one of those hives had 100 pounds of surplus honey on it.

Now, a few lessons here. Where did the bees in those hives form their winter cluster last fall for the past cold winter? Evidently on the empty combs along the lower lines of their honey and over the cells from which the last brood emerged. The guess is sure. As their honey is consumed they can move upward for it and keep up with their diminishing stores. This is the normal way. Now, suppose man, with his superior knowledge (?), had gone to "messing" with those hives on his great idea of vertical contraction and removed some of those combs, thus separating the bees from their combs and wax-coated walls, all of which are non-conductors of heat and cold, and inserted wooden "dummies" which are conductors of heat and cold, would he not have done damage to the bees and defeated the very object he was trying to accomplish? Again, suppose that those bees had been put on combs filled solidly full of honey and pollen, no empty cells, where would we now find the bees clustered in very cold weather? Just as far away from the entrance as they could get, which would be at the tops of the combs. Then, if the honey over which they are clustered is consumed during the continuance of the cold spell, what would happen? They would all starve because they could not reach the honey below them. With the Demuth plan, the combs standing on end, the empty cells which were at the bottoms of the frames extending all the way from the bottom to the top along one edge and the honey along the other edge, or side, they are placed in a vertically contracted and abnormal position, and I would expect them to again form their winter cluster at the tops of the frames and starve. If I were to use this plan I would put the bees in the inside case early in the fall and feed liberally to cause them to fill the top part of the frames with honey and rear brood in the combs at the bottom so that they would form their winter cluster in a normal position at the bottom ends of the frames. Again, six frames, containing only about 825 square inches of comb, is not enough to supply room for brood-rearing in the spring. Very few beekeepers use hives large enough.

J. G. Norton, of Macomb, winters on summer stands.

When a good queen is laying 3,000 eggs every 24 hours it will require 1,350 square inches of comb to supply room for the queen, to say nothing of the comb-space to hold sufficient honey and pollen to supply the need of the colony.

Hatcher, W. Va.

## A Summer and Winter Hive

By D. C. Noble

THE first picture shows the hive as it appears in use. The second shows it with cover removed in summer. It holds fourteen Hoffman frames. For winter two or three frames are removed from each side and division boards put in. The empty space is then filled with dry leaves or chaff for winter packing. At the rear of the hive there is also a 2¼-inch space to be packed in a similar manner. When packing material is removed, the hive may be pushed back if desired, to permit the space in the rear to serve as a ventilating chamber conducting fresh air to the top of hive.

Each super holds forty 4¼ sections. With the side frames removed, the hive has the same capacity as the standard Langstroth hive, so that parts are interchangeable.

Columbia City, Ind.

## A Letter From Scotland

THE following letter from our learned Scottish friend of Aberdeen may prove interesting to our readers. We call especial attention to the last paragraph, which suggests a new thought.—Editor.

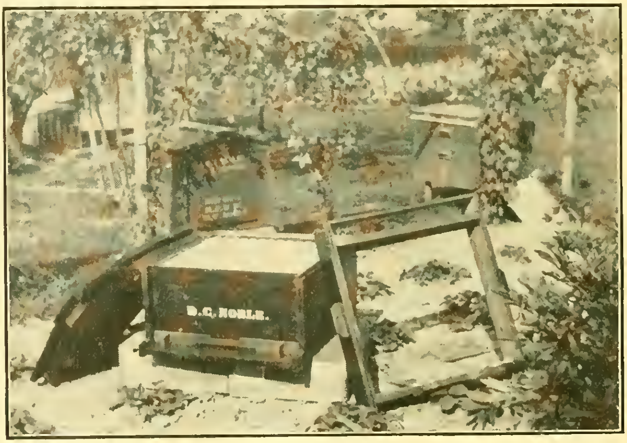
By John Anderson, M. A. B. Sc.

Many thanks for your delightful letter of April 29. It is so good of you to send me such a long letter when you must be so very busy with matters of much more importance. In your last two letters to me there were references to the war, references and sentiments with which I cordially agree, and it is interesting that both were opened by our censor. I hope he is pleased.

The May American Bee Journal is at hand and I have read Fabre on parthenogenesis. I agree that the evidence is not sufficient, and that the conclusions are unwarranted. Possibly he makes too much of the eggs of drone breeders not always hatching. The bees get disgusted with those queens and weakened and sometimes neglect the grubs as well as the eggs, so it is not surprising that some of the eggs remain unhatched. I had the opportunity of examining two queens which laid abundantly and regularly, but none of whose eggs hatched. In both cases it was quite clear by microscopic examination that the queens had been duly mated. Cook has also verified this.

Fabre is always delightful, but one cannot always agree with him. He thinks, for example, that ants find their way home on common sense principles, by means of landmarks but that bees, wasps and cats have a mysterious homing instinct, or sense of direction. If he had been able to watch the bees as closely as he could the ants, I think he would have concluded that these, too, found their way home just as we do.

Noble's all-year hive



Noble's Hive, showing the parts

I have read as much of your life as I could get hold of and envy you the great privilege of beginning where your father left off. I agree that a lifetime with the bees is not enough to exhaust the interest. Fortunately, the bee enthusiast need never, like Alexander the Great, weep for more worlds to conquer.

You may be right in suggesting that the supposed worker-egg-laying worker may be a small queen. My Punics have made bundles of queen-cells, as did Cyprians I had years ago, and some of the cells appeared quite small. I have divided into nuclei and laying-workers have already started in one of these, though the queens are not yet due to emerge. I shall have more to say later.

I have been trying out another of Hewitt's theories. He says that you can keep a stock all summer rearing batches of queens if you simply supply eggs at intervals. It doesn't matter how many cells they have already, or what stages these may be at. There may be even loose queens piping on the comb. I had a stock with five sealed queen-cells, to which I gave a comb with eggs; they have started fresh cells on those eggs.

We have coddled and fed our bees far too much, and we have been too successful in wintering. It does not seem to occur to you that the high winter death rate among bees in America is probably an important element in the success of Americans in honey production. There may be a loss of perhaps as high as 75 per cent, but the 25 per cent left have been sifted and are likely to be hustlers.

Good luck to you, and more power to your elbow.

Banff, Scotland.

## Hive Entrance

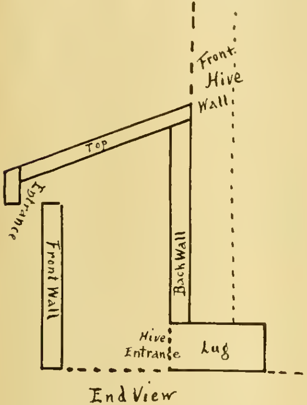
By A. F. Bonney

FROM time to time there appear suggestions for protecting the entrance of hives during the winter, but up to the present time nothing which meets general approval, and those who winter out of doors seem to trust to luck.

It is not only in outside wintering that the entrance of a hive needs protecting, for from the time the bees are removed from the cellar until settled warm weather comes they are in a critical position. They have to be protected with a wrapping of tarred paper, and the spring winds, some of which are very cold, rob the hives of heat, as much of it is sucked out of the hive through an unprotected entrance.

This is, of course, threshing over old straw, but in doing it, mentally, I think we have discovered one grain of wheat, in an entrance protector, which is convenient, cheap, easily applied, cannot get out of place, makes it practically impossible that the entrance clog with dead bees, snow or sleet, which almost every year cause the loss of many colonies to those who winter out of doors, and the number of those who do is increasing. The beginner, with a few colonies of bees is practically forced to, as he cannot afford a cellar, and would not know how to use it if he had one.

My idea of a perfect entrance protector consists essentially of a box, made of thin material, 14¼ inches long, 2 inches from back to front, and 2 or more inches deep. The top slants forward at an angle of about 20 degrees and projects past the front half-an-inch or more. Just under it is the entrance, and the edge of the top is painted white to locate the entrance; the rest of the box is painted black. There is a back to the box with a three-quarter-inch opening to correspond to the hive entrance, and two lugs, each 2 inches long, one at each end, to slip into the entrance to hold it into place. A strip of wood extends down from the front edge of the cover to protect the entrance from wind and snow.



Bonney's winter entrance

The advantages I claim for this idea are as follows: It conserves heat, as no wind can blow directly into the hive; dead bees cannot obstruct the entrance, as the ¾ inch opening is wide open all winter; the box being painted black and the strip over the entrance white, the bees easily find their way in; the first rays of the sun will be absorbed to thaw ice and snow long before the bees are warm enough to fly out; the boxes can be made cheaply, and they will, if kept painted, last for years.

Buck Grove, Iowa.

## Beekeeping Around San Francisco Bay

By E. D. Crowl

We started out this spring with three nuclei in our back yard, no one of which was large enough to cover three frames. Brood-rearing in two of them had not stopped during the winter, which was unusually mild, and in the third, which was the smallest, had stopped about November 1 and begun again December 27. They grew strong rather slowly, probably due to the weak condition of the colonies. The nights are very cold early in the year (they are never **warm** at any time here) and this year the fruit bloom was late, apricots not coming into bloom until the middle of March, which no doubt hindered the building up somewhat.

On March 20 the strongest colony, in an 8-frame hive, had brood in all of the frames, and the bees were putting honey into the brood-cells until it interfered with the queen's laying, and there were not as yet bees enough to care for the brood and work in the super also. We had the same trouble with all three hives, filling everything with honey until it interfered with the brood. March 30, peach, early cherries and plums were in bloom, and work began nicely in the supers.

Fruit bloom lasts a long time here, almonds beginning usually in February and apples ending the season. This year the apple bloom was over about the middle of April, somewhat later than ordinary. This certainly gives the bees a good chance to build up. About the first week in June the flow diminishes, though there is some all summer. Then in August the fall flow begins and lasts till it gets too wet and cold for the bees to fly. The eucalyptus trees commence blooming in the fall and furnish a good deal of honey. The bloom from the different varieties lasts all winter and until late in the spring, but owing to the generally cold and rainy weather the bees cannot make the best use of it.

White clover amounts to nothing here, though there is a good deal of it in the lawns. It seems to have no nectar, as the bees are seldom seen on it. There is a good deal of dandelion, which blooms all summer, but the bees pay little attention to it. The bloom of the different varieties of acacia cover many weeks, usually beginning in early January, and the bees seem fond of it; but coming so early, the weather is usually too inclement for them to get the full benefit of the bloom. The excretion which they gather, in some varieties, at least, is found, not in the blossoms, but on the edges of the leaves. I have not had an opportunity to observe whether this is so in all varieties.

During July and August a bright red honey, in very small quantities, is gathered from something, I have not been able to ascertain what. It is a very well flavored honey, but only an occasional cell is filled with it. The honey gathered here is amber in color and of no particular flavor, being obtained from all sorts of sources—just honey. The usual sources of California honey, sage, orange, bean and alfalfa, are not, of course, to be had in a city.

The weather around the bay cities is, taken as a whole, too cold and foggy, and there are too many days with high winds for good bee-keeping. We have, however, had all the honey we could use and a good deal to sell, and have five additional hives, formed on the nucleus plan, with queens raised above an excluder over the strongest hive we had. We could, of course, have had more honey if we had not used any of the bees for increase. These new hives will probably be strong enough to gather some surplus during the fall flow, as one of them already has five frames of brood in it and another three, although they were formed late. Our warm weather generally comes during August and September—in fact, it is about all the summer we have, so I hope for considerable honey during that time.

Berkeley, Calif.

## A Winter Entrance

By C. W. Brimhall

The photo gives a good idea of my special winter entrance and how it is used. Beekeepers, who winter outdoors in the north, are familiar with the clogged entrances that often result from the melted snow freezing in the entrance and filling it with ice. This special cover protects the hive from direct drafts of cold wind, as well as keeping the snow from melting and clogging the entrance with ice. The bees can readily leave the hive when conditions are favorable. A brick is placed on top of this guard, to hold it firmly in place.

Winter entrance of C. W. Brimhall

Schaller, Iowa.

## The Temperature of the Bee's Body

By Dr. Brunnich

It is a well-known fact that bees are able to produce warmth, that they may, especially in winter-time, keep the temperature within the cluster at a point which surmounts, by far, the temperature of the outer air. Most of us have read with great interest the experiments which were made in Dr. Phillips' laboratory.

As Berlepsch already stated, it is now generally known that the temperature in the brood nest in spring and summer is about 37 deg. C (98 deg. F.) This warmth must be produced either by the surrounding bees or by the brood itself. The latter is little probable, because it is clear that eggs and little worms cannot produce warmth enough. It is even a question whether the older brood is but a consumer of warmth (produced by adult bees) or whether it may generate some warmth itself. To solve those and other questions, I made the following experiments:

I wished to measure the inner temperature of bees and brood with an electric thermometer. The principle of this is a simple one. If we form a circle by two different metal threads, for instance of platinum and copper, there will be produced an electric current if the temperature of one soldering is higher than the temperature of the other. An exact and most sensitive galvanometer shows us the relative importance of the current. With the help of a professor of physics, I constructed a fine needle, which was formed by soldering a thread of platinum, 3-32 m m of diameter, with a thread of copper, 5-32 m m. The other soldering of the platinum thread with a thicker copper thread was about 1 cm from the point. The whole needle was fixed in a cramp and near the soldering of the platinum with the thick copper thread we placed an exact thermometer. The only fear I had was that it would perhaps be difficult to determine the exact temperature of the bee, because I supposed that at once a great loss of warmth would arise in three different manners:

1. The bee immediately ceases to produce warmth and therefore begins to cool by irradiating its warmth; however, this loss is significant and slow.

2. The threads of platinum and copper draw off by conduction a certain portion of the warmth of the surrounding animal matter.

3. The greatest loss arises, perhaps, by the formation of the electric current, because the current is formed by absorbing the surrounding warmth.

The success showed that my fear was well founded. To prove it I made a number of experiments where we noted the temperature shown by the galvanometer, first every 10 seconds, and later every 5 seconds. I will give the result of a single experiment, No. 47: A flying bee which was pierced with the thermo needle into the breast. The temperatures shown on the galvanometer were:

| | |
|---|---|
| After 5 seconds | 29.4 deg. C |
| After 10 seconds | 34.5 deg. C |
| After 15 seconds | 36.2 deg. C |
| After 20 seconds | 36.1 deg. C |
| After 25 seconds | 34.8 deg. C |
| After 30 seconds | 33.3 deg. C |
| After 35 seconds | 31.8 deg. C |
| After 40 seconds | 30.2 deg. C |
| After 45 seconds | 28.9 deg. C |
| After 50 seconds | 27.5 deg. C |
| After 55 seconds | 26.4 deg. C |
| After 60 seconds | 25.3 deg. C |
| After 65 seconds | 24.4 deg. C |
| After 70 seconds | 23.4 deg. C |
| After 75 seconds | 22.7 deg. C |
| After 80 seconds | 22.0 deg. C |

The other experiments showed the same scale and we established that the maximum was reached always after 15 seconds.

Of course, this maximum does not correspond to the beginning temperature, because in those 15 seconds the temperature of the surrounding medium will sink steadily. It would be the same if you wished to weigh a little portion of ether in an automatic balance; you would not be able to get the true weight, because a great deal of the ether would be evaporated, if the hand had reached its maximum. With the help of mathematical speculations, I could find that the real temperature—between the limits in question—would be about 1½ to 2 degrees C. higher than the first maximum shown by the galvanometer.

I was certain to get the best results by piercing the bee in the breast, because there the inner body is most compact, while in the head, as well as in the abdomen, there are many air sacs. When I did not succeed in piercing the breast of the bee in a correct way, I got less temperatures; for instance, when the point of the needle penetrated the thorax so that it became visible, the temperatures of the abdomen were all 10 to 15 degrees lower than those of the breast; therefore, I did not note those results, with the exception of 2 or 3. The temperatures of the bee breast alone are to be considered as standard.

As to the temperature of the brood, I could only make experiments with capped brood, because, for my needle of 5 mm length, the worms were too little. It is natural that also with the brood I did not always succeed in pricking exactly enough, therefore some of my results may be too low.

The first five series are made with a mating box with three movable frames 12x6 in. with a fertile queen and with brood up to about 17 days. The other experiments were made with a queenless section of my construction, i. e., a single frame of 15x 4½ in., with brood also about up to 17 days, and later on with a few queen-cells.

**1. April 15.**—Outer temperature 15 deg. C (59 deg. F.) All bees flying ones.

1. 36.6 deg.
2.—32.1 deg.
3.—34.5 deg.
4.—37.5 deg. (99 deg. F.)
5.—35.0 deg.
6.—33.7 deg.

**2. April 18**—Outer temperature 13½ deg. C (56 deg. F.)

(a) Fanning bees before the flight hole.

7.—31.7 deg.
8.—36.6 deg.
9.—38.7 deg. (102 deg. F.)
10.—35.2 deg.

(b) Returning bees.

11.—31.8 deg.
12.—33.5 deg.
13.—36.5 deg.
14.—31.0 deg.
15.—38.8 deg.
16.—33.0 deg.

No. 14 had been caged in a metal box for 10 minutes. No 16 had been sitting for some minutes idly on a window.

(c) Flying off bees.

17.—34.1 deg.
18.—39.0 deg. (102 deg. F.)
19.—37.7 deg.
20.—38.0 deg.
21.—29.2 deg. (abdomen).
22.—39.2 deg.

**3. April 20**—Outer temperature 7 deg. C. (44½ deg. F.) All bees had been caught on the flight hole with a pincer.

23.—23.1 deg. (abdomen. Immediately after this, breast 28.6 deg.
24.—32.0 deg.
25.—36.3 deg.
26.—36.0 deg.
27.—37.2 deg.
28.—32.8 deg.
29.—36.3 deg.
30.—34.5 deg.
31.—36.0 deg.
32.—36.6 deg.
33.—36.7 deg.
34.—37.4 deg.
35.—38.1 deg.
36.—33.0 deg.
37.—37.7 deg.
38.—37.7 deg.
39.—32.4 deg.
40.—33.5 deg.
41.—38.2 deg.
42.—37.3 deg.
43.—38.9 deg.
44.—37.3 deg.

No. 45 had been spit, but flew off after being caught; spit once more.

**4. April 25**—Outer temperature 15 deg. C. (59 deg. F.)

46.— 34.9 deg.
47.— 38.1 deg.
48.—Drone going to fly 36.0 deg.
49.—Young bee on window 33.1 deg.
50.—Young bee on window 35.8 deg.
51.—Young bee on window 34.9 deg.
52.—Old bee on window 36.5 deg.
53.—Old bee on window 36.0 deg.
54.—Old bee on window 39.1 deg. (102 F.)
55.—Old bee on window 38.0 deg.
56.—Old bee on window 37.5 deg.
57.—Old bee on window 37.6 deg.

Brood, white nymphs.

58.—45.2 deg. (113 deg. F.)
59.—37.8 deg.
60.—38.7 deg.
61.—36.0 deg.
62.—35.5 deg.
63.—34.3 deg.

It is easy to recognize that the brood was cooling, the box being opened and the bees not very numerous.

**5. April 26**—Outer temperature 15 deg. C. (59 deg. F.)

64.—Drone on comb 40.7 deg. (105 deg. F.)
65.—Drone on comb 37.5 deg.
66.—Drone on comb 38.5 deg.
67.—Brood, about 14 days old 43.0 deg.(109deg.F.)

68.—Brood, about 14 days old 43.0 deg.
69.—Brood, about 14 days old (40.0 deg. F.)

**6. April 29.** Section bees. Outer temperature 14 C. Brood all nymphs with white eyes.

70.—43.1 deg.
71.—40.0 deg.
72.—40.9 deg.
73.—38.0 deg.
74.—39.3 deg.
75.—41.1 deg.
76.—41.4 deg.
77.—40.0 deg.
78.—39.8 deg.
79.—39.7 deg.
80.—42.9 deg. The other warmed side of combs.
81.—42.2 deg. The other warmed side of combs.
82.—Drone on comb ------ 35.4 deg.
83.—Drone on comb------- 40.8 deg.
84.—Drone on comb------- 45.0 deg. (113 deg. F.)

**7. May 3**—Outer temperature 18 deg. (64 deg. F.)

85.—Flying bee ----------- 39.5 deg.
86.—Flying bee ----------- 40.0 deg.
87.—Flying bee ----------- 33.9 deg.
89.—Flying drone, breast-- 48.6 deg. (119 deg. F.)
—Through abdomen---- 35.3 deg.
Through head --------- 36.7 deg.

Brood — Freshly capped worms. Nymphs with brown eyes.

90.—44.4 deg.
91.—43.7 deg.
92.—45.0 deg.
93.—42.5 deg.
94.—40.9 deg.
95.—40.8 deg.
96.—42.0 deg.
97.—40.8 deg.
98.—43.7 deg.
99.—42.6 deg.
100.—43.2 deg.

**8. May 7**—Outer temperature 18 degrees C. (64 deg. F.)

101.—Queen, gray, with white wings, taken out of cell 38.6 deg.
102.—Queen, white, the cell opened ---------------- 40.5 deg.
103.—Drone ---------------- 40.7 deg.
104.—Drone ---------------- 45.9 deg.
105.—Drone ---------------- 38.2 deg.

Brood—Nymphs with white eyes, W; nymphs with brown eyes, B.

106.—38.9 deg. W.
107.—40.5 deg. W.
108.—42.1 deg. B.
109.—44.2 deg. B.
110.—39.8 deg. B.
111.—30.5 deg. W. (The brood begins to cool.)
112.—37.5 deg. W.
113.—36.9 deg. W.
114.—37.4 deg. W.
115.—35.5 deg. W.

There is no great difference between fanning, or flying bees. Unhappily, I could not take brood bees, because the disturbance of the few bees was too great to distinguish them exactly. Also, there was not a great difference if the outer temperature was 7 deg. or 18 deg. On account of extrinsical circumstances, I had not the possibility to make the experiments, as they ought, i. e., in the very apiary, where I could operate with strong, normal colonies, I suppose I should have gotten, especially for the brood, higher figures. But I hope that the same experiment shall be made by others with larger means, with finer instruments. It would be necessary to operate with thinner and shorter needles and with much more sensitive galvanometers. At all events, these measurings are possible and give interesting results.

My highest temperature for bees was 40 deg. C. (104 deg. F.), but I suppose this temperature should be still higher in time of the fullest development of a good colony. However, the temperature of bees is not constant and, may vary about 10 deg. C. (18 deg. F.) I observed that the temperature of a caged bee, especially if it is chilled, sinks rapidly. A bee which at 7 deg. C. outer temperature was caged for 15 minutes, showed then only an inner temperature of 9 deg. C.

The maximum of the temperature of drones is very high—48.6 deg C. (119 deg. F.), although all my drones were still young ones, and not very robust.

The temperature of the brood is most interesting, the maximum of a white nymph with brown eyes was 45.0 deg C. (113 deg. F.) and it proves that the brood is indeed producing warmth. It is at the same time giving and taking. For in a temperature rather beneath 37 deg. the brood cannot thrive, but when the surrounding temperature is brought by the brood-bees up to 37 deg. C., then the little worms and nymphs represent little stoves themselves, and as such also produce warmth.

It would be a grateful task to continue those experiments on a larger scale than what in default of the means I unhappily must resign, but I hope that others who have the possibility will do so.

Reuchenette, Switzerland.

## BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### War Beekeeping for Women

It is highly gratifying to see how beekeeping is appealing to women as "war work," and I would like to give my happy experience as a beginner for the encouragement of other housewives wishful of obtaining honey for their families, but who doubt their ability to make a success of an apiary.

I started with a swarm of hybrids in a W. B. C. hive on May 28 of last year. It gave me over 50 pounds of delicious clover honey and a fine nucleus as well, which is now strong on eight frames. In June and July I added two other swarms to our little apiary.

These four stocks were fed up in October on pink candy syrup, and were tucked into bed for the winter

They are now the pride of my life, and as healthy and hard-working as anyone could wish. They are so interesting they almost make one forget there is a war going on, and I confidently expect to take a splendid surplus of honey before the end of the summer.

Some women say they would like to keep bees if they were not afraid of their children being stung. My experience in this has been quite the opposite. The children play all about the hives, being much interested in the busy workers, and only once have they been stung. That was when the little girl tried to push a chilled bee into the entrance of the wrong hive. One bee, only, seemed to object, and risked her life to protect the hive. My little girl held herself still, however, and let the bee pull out its own sting, which we hope saved its life.

No woman who has once known the joy of seeing her own bees working her own cherished flowers, fruit, marrow and bean blossoms will ever enjoy gardening again without them. Even dull darning may be turned into sufficient excuse for taking an easy chair out by the hives and watching the bees carry honey for the household. And, say—it's a proud moment when your admiring family sits down to tea before your first wonderful dish of honey!—G. C. B. in The British Bee Journal.

### School Teachers as Beekeepers

A school teacher says, in the British Bee Journal:

A lady beekeeper, whom I often assisted, sent for me one day. Her garden was surrounded by large trees, and a swarm had settled near the top of one of them, overhanging the road. The gardener, though not a beekeeper, had offered to climb the tree and cut the bough off, but the lady feared to give her permission without first consulting me, lest passersby should get stung by infuriated bees in case anything went wrong. Tree-climbing is not in my line, but if the gardener was willing to make the attempt, and fixed a rope to the branch before cutting it off, I said I saw no reason to fear any bad behaviour on the part of the bees. A start was made at once, and before long the swarm was being carefully lowered, while I stood beneath, waiting to deal with it as soon as the bough came within my reach. In the middle of the operation numbers of boys began to troop by, on their way from their houses to the school, and the process of lowering the branch naturally attracted their attention. We warned them to stand clear lest the bees should come down with a rush. However, the lowering took some time, and they had to proceed to their lessons before it was accomplished. My piano pupil arrived in the meantime and stopped to see the finish. At length the bough was carried into the garden, and the bees shaken off successfully in front of the prepared hive. Other swarms came from this apiary during the summer, all of which pitched on high branches, so that we got quite familiar with the tree-climbing business. I suggested the use of water as a preventive, but the bees always managed to forestall their owner and be well on the wing before she was aware they were out.

One day, when cutting out queen-cells, for this lady to prevent after-swarming, I noticed a fine young queen crawling among a number of cells I had laid upon a lift by my side, and presumably just emerged from one of them. Miss B. picked her up to show to a friend in the house, but let her escape. She took wing, and circling round and round at a great height, at length appeared to get tired, and began to come lower. My companion extended her arm, intending to catch her, when the queen calmly came to rest on the outstretched hand, and was secured.

# MISCELLANEOUS NEWS ITEMS

**Michigan State Meeting.**—The date of the annual meeting of the Michigan State Association has been changed to November 19, 20 and 21, at Lansing. Correspondence concerning this meeting should be addressed to B. F. Kindig, State Inspector, East Lansing, Mich. A large attendance is expected.

**North Carolina State Meeting.**—The third annual meeting of the North Carolina State Beekeepers' Association is to be held in Asheville, Thursday, October 17. For particulars, address Dr. Franklin Sherman, Chief Entomologist, Raleigh, N. C. A large crowd is expected.

**Death of Texas Pioneer.**—Charles J. LeStourgeon, a pioneer of Texas beekeeping, died in Medina, Texas, on the morning of July 29. He was 75 years of age. Born in Western Illinois of French Huguenot stock, whose settlement of New France antedated the American Revolution, he emigrated to Texas in 1871.

Beekeeping always had a fascination for him. There being little opportunity of obtaining the new movable frame hives at that time, he and Wm. P. Hough started a factory near Floresville, Texas. They first manufactured the Van Dusen upright hive with a glass observation window and removable brood-chamber. Afterward the superiority of the Langstroth simplicity hive caused him to adopt it. Through his efforts the Langstroth hive became the standard for early Texas beekeepers. Mr. LeStourgeon was a beekeeper up to the time of his death.

He leaves, besides the widow, three sons and two daughters. One of his sons, E. G. LeStourgeon, is Manager of the Texas Honey Producers' Association.

**Spray at Blossom Time Kills Bees.**—The following circular is received from T. R. Johnston, Assistant County Agent Leader, at Lafayette, Ind.: "Experiments have been undertaken at Purdue University by the Entomology Department to show the effect on bees of tree sprays applied at blossoming time to control the coddling moth and other insects. The first step of the experimental work, which is to extend over a two-year period, has been completed and indicates that the spray on the blossoms kills the bees.

"Through the feeding of bees and analyzing of their bodies it has been found that it requires only .0000005 (five ten-millionths) of a gram of arsenic to put them out of business. In other words, the small amount of arsenate of lead used in the spray, if applied while the blossoms are open, means that the bees will gather no more nectar after visiting a few blossoms.

"Practical beekeepers and orchardmen in Indiana disagree on the question as to the effects on bees of spraying at blossom time. Analysis of the bees killed by arsenic and observations at spraying time this spring indicate that the spray is fatal to the buzzers. Sprays should not be applied while the blossoms are open, but wait until after they have fallen."

**The National.**—The next meeting of the National will be held at Chicago, date and program to be announced later.

**A Wrong Address.** — Those who know Friend Gilling's opinion on the liquor question will appreciate the following: "The telegraphic address of the Honey Producers' Association is 'Bees,' but owing to some men not beeing very good writers, a number of wires reached our friend addressed 'Beer.' Hawera and the customs people are trying to find an illicit brewery in the district."—New Zealand Beekeepers' Journal.

**Necrology.**—Mr. John Witham, a noted apiarist of Monrovia, Calif., died July 15 at Palo Alto. Mr. Witham was at one time a very extensive beekeeper in Monterey County. He was a native of Michigan and was 76 years of age.

**An Illinois County Association.**—The Henderson County Honey Producers' Association met at Oquawka, Ill., August 3 and elected the following officers: R. R. Banta, President; J. L. Akin, Secretary-Treasurer. The objects of the organization are to co-operate in securing a more nearly pure race of better bees, an increased quantity of honey, and to establish a uniform price for our product, both to the producer and consumer.

R. R. BANTA, Pres.

**Preparing the Bees for Cold Weather.**—1. Unite any weak colonies to make colonies of normal strength. 2. See that every colony has sufficient food stores of good quality to last during the winter—25 to 30 pounds are necessary. 3. Provide adequate protection against the wind and pack the hives well, as described in detail below:

Beekeepers lose from one-tenth to one-half of their colonies every winter by failing to feed and protect them properly. That loss is too large, bee specialists of the U. S. Department of Agriculture believe, and in a statement issued they declare these losses of important sources of sugar can be reduced to less than 1 per cent.

Wintering bees is a problem of conserving the energy of the individuals in each colony, the bee specialists say. Three conditions in the hive cause a waste of energy. First, when the temperature of the air surrounding the bees falls below 57 degrees it is necessary for the bees to expend energy to keep warm. Second, when the temperature of the air is above 80 degrees the bees use energy by flying from the hive, removing the dead that may have accumulated, and in any other activities which the needs of the colony require. Third, an abnormal activity resulting in energy loss is caused by long periods of adverse weather which do not permit the bees to fly from the hive to void their excrement. This last condition may result in the death of many thousands of colonies, the specialists say.

Protection of the hive and providing of foods of good quality for winter stores will conserve the energy of the bees and enable the colony to pass the winter safely outdoors. If the hive is placed within a box about 6 inches greater in each dimension than the hive itself, and the space between filled with dry sawdust, leaves or other insulating material, the necessity of heat generation by the bees is reduced to a minimum. A small tunnel through the packing material will make a passageway for the bees to the entrance to the hive.

Care must be taken to see that the hives have proper food stores. Food such as honeydew honey or honeys, with a large percentage of gums, which may cause a rapid accumulation of excrement in the bees, are undesirable, but may be corrected by inserting a frame of honey in the middle of the brood-chamber after brood-rearing has ceased. Another remedy for undesirable stores is to feed about 10 pounds of a syrup made of 2 parts granulated sugar to 1 part of water. In either case, when such food is given after brood-rearing has ceased, it will be placed by the bees in positions most available for immediate use, and the poorest food stores saved until spring. When the air surrounding the bees is maintained at about 57 degrees, and no other irritating factor is present, the bees live so slowly that very little food is consumed, the colony being almost in a dormant condition. A normal colony of bees thus protected and fed not only will endure six months or more of confinement, but have sufficient vitality left to be useful when spring comes.

Washington, D. C.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

## Swarms

1. Someone advises to treat against swarming as soon as the eggs in cup are noticed. I have tried it and feel that I do not like it. Now, will you state just how the colony must appear inside for you to apply the "put-up" or other procedure for the same purpose? Let there be considered four stages, to-wit: (1). Egg in cups. (2). Young uncapped queen-cells. (3). Same as 2, but just about as big as capped. (4). Capped or sealed. At which of these stages do you operate? If you notice 1, 2 or 3, do you do anything, or just let them develop?

2. When you make nuclei with 3 or 4 frames, about what per cent are successful with first attempt?

3. Would you do anything in particular it you noticed rather commonly on the lower rim of brood-frame, capped drone-comb above worker-comb honey?

4. A week or so ago I received one-half dozen queens. I divided that many colonies; queen with very little brood on old stand; most all the brood and the new queen on a new stand. Today I found the latter with very small queens, and in each of that three a lot of queen-cells. I concluded to leave in each of them the best queen-cell, without interfering with the queen. What do you think of that.

5. The following has happened: I had a swarm; secured it put the swarm on the old stand and the parent hive on a new stand. Some time after, that *parent* hive swarmed, but on investigation (I secured the swarm), in neither hive could anything like a queen-cell be found. Yesterday that same "parent hive" swarmed again. I secured it and today found just the same state of affairs. That "parent hive" by the swarming is resplit, but in neither part was there any queen-cell or anything like it. Another queer thing to me is, the swarm I put on the old stand (the last one to swarm), and parent hive No. 2, located aside, has many more bees than the hive I put on the old stand. To the last of these I gave queen-cells. Today another hive swarmed, also arisen from brood put on a new stand. I secured it and put the swarm on the old stand and the other part next to it. On finishing the work of the day I looked at these two, and again found that the hive aside has many more bees than the swarm proper placed on the original stand. In the parent hive of this I neither found anything of the nature of a queen-cell. I did not look through the swarm, as I did not care to disturb it so soon after hiving.

PENNSYLVANIA.

ANSWERS.—1. The first time around, everything in the way of a queen-cell is killed, whether it be an egg in a cup or a sealed cell. On the next round, perhaps ten days later, if the case comes under your 1 or 2, the cells are killed, and same thing upon succeeding rounds. In other words, no treatment is undertaken so long as nothing but eggs or quite young larvæ are found. At any time after the first round, cases 3 and 4 are put under treatment.

2 About 100 per cent, if you mean success in forming the nuclei and having the bees stay on their new stand. If you mean the number of cases in which the young queen succeeds to the point of laying, I should guess somewhere in the neighborhood of 75 per cent.

3. The drone-comb should be cut out, even if nothing were done but to leave the vacancy to be filled again by the bees with drone-comb; but it would be better to fill up the vacancy with a patch of worker-comb.

4. It often happens that a queen will not at first be allowed to lay, and if looked after a few days later the queen may be found missing, or she may be found laying. If she is still alive, I think her chances for continued life will be better if all cells are killed. A good many times cells will be started when a queen is introduced, and then the bees, if left to themselves, destroy the cells. It was entirely natural that the queens should be small so long as not in full laying.

5. When an afterswarm issues, there should at least be found an empty cell from which the queen emerged. If none was really present, it looks as if it might be that the bees swarmed out with the virgin on her wedding trip. I don't understand why more bees should be in the old hive than in the swarm, unless enough time had elapsed for a force to hatch out, although there might be such a thing as part of the swarm returning.

## Raising Queens

I have a suggestion as to raising queens which may be helpful to someone, and I have not seen the plan in print. I have several queen-excluders covered with wire screens and several hives with a three-fourths-inch hole bored in one end, with a piece of tin tacked under the hole and bent down for a door-step. When I find a queen-cell I want to save I put my screened excluder over any colony I may select with my hive with a hole facing the front on top and raise two or three frames of brood from below, or from any source desired, and give them the frame with the queen-cell. When the queen is hatched and mated I can use her when I please, and removing my screened excluders leaves the colony intact. I find three advantages with this manipulation. 1st it is simple and convenient to assemble with no extra equipment. 2nd, colonie are not broken up to form mating nuclei, and, 3rd, if the new queen is raised over the colony where we wish to requeen, all we have to do when the young queen gets to laying is to remove the old queen and put the young queen and bees from the upper story in the lower story, with no introducing necessary. There is another advantage, in cool weather the bees from the full colony below help to keep our nuclei warm.

NEW YORK.

The plan of rearing queens above a colony with a laying queen dates back some years, and is mentioned by Doolittle in his book on queen-rearing, written more than a quarter of a century ago. But the fact that one engaged in beekeeping several years has not seen it in print shows that it does not enjoy the publicity that it deserves, especially considering the advantages enumerated by our correspondent.

In the practice of others, the bees in the upper story are not entirely shut off from communication with the bees in the brood-chamber below, all that is necessary being an excluder over the brood-chamber. Indeed, in the first case on record there was not even a queen-excluder; four or five stories of empty brood-combs were piled upon a brood-chamber and a frame of brood put in the upper story. The bees reared a queen from the brood given, the queen laid, and a brood-nest was established.

Neither is it necessary to bore a hole in the upper story. The cover of the hive may be shoved forward enough to allow passage for the queen, or the body itself may be shoved forward to make the passage.

It seems to be a matter of some importance that the brood be as far as possible from the lower story containing the queen. If brood is put into a story immediately above the excluder, the chances are that no cells will be started, although if cells already started are put there they are likely to be rejected.

It should be added that not all are successful in getting queens to laying in an upper story at all times, the queens disappearing about the time they should begin to lay.

## Mismated Queens

Last summer a swarm issued from one of my hives. They were pure Golden Italian bees. I think the old queen was lost, because they tried to swarm before, but came back. A week later they swarmed again. I hived them in a new hive and a week later I examined this hive and found the queen. I think that she was a virgin that went with the swarm, because she was so small. The old queen was so large. Now there are bees in the hive that are black, some three-banded, and some golden bees. I wintered them in a two-story hive. They are now in excellent condition, as they have thirteen frames that have brood and plenty of honey and bees. I think the queen is mismated. The bees are cross and not very quiet on the comb. Do you think that requeening would be all right? She is a good queen and I hate to kill her, on account of her prolificness. The bees are continually fighting at the entrance. Do you think it is their own bees, or robber bees? What would you advise me to do?

MINNESOTA.

ANSWER.—You are correct that the queen has mated with a drone of undesirable stock. But as she is doing such fine work, I think I would leave her undisturbed, at least until near the close of the season, provided you can stand the crossness of the bees. I don't know just what to think of the fighting at the entrance. It is more likely robbers than bees of the colony fighting among themselves—indeed the latter is not at all likely—but it seems strange that it should be a continuous performance, especially since the colony is strong.

## Uniting

I have been told that to unite weak colonies of bees in the spring makes them no stronger. You say unite in the fall. Please write in the American Bee Journal explaining why it doesn't do in the spring to make one or more out of many weak ones and best plan to do so. If a hive is reasonably strong in the fall and hives to spare, which do you recommend, smother what you don't want, or unite?

ONTARIO.

ANSWER.—If in the spring you unite two colonies that are weak and in good condition, the united colony will be stronger than either of the separate colonies was. But if you have one or more colonies that are what are called "dwindling," and unite them together, the united colony seems to dwindle in a short time to as little as either of the separate colonies, if not less. Just why it is so I don't know.

The best way to unite two colonies is to put over one of them a sheet of newspaper, and over this set the other hive without any bottom. The bees will gnaw a hole through the paper, get together gradually, and unite without quarreling.

If I should want to make the number of colonies less in the fall, I would do it by uniting.

## Time to Catch Drones

1. When is the proper time to catch drones? I had two swarms come off, and the old one was full of drones; so I used the drone-trap and destroyed them.

2. One swarm came off three times and went back each time to the old hive; so I trapped all the drones and queen and they seem fine now. Why did they go back so many times; the hive was a new one, with fresh starters.

3. If I have a new idea along the bee fixture line that I know is a good one, at least a big time saver, how am I going to protect myself so as to put my plan out for investigation and not have it taken away from me, and if other people think it O. K., then have it patented? MINNESOTA.

Answers.—1. You did all right, but the best time to catch drones is before they are born. Use full sheets of worker foundation, so there will be no chance to rear a lot of useless consumers. If you already have combs containing drone-comb, a good plan is to cut out the drone-comb and fill its place with patches of worker-comb.

2. I don't know why it is that a swarm will sometimes return and then issue again; possibly in some cases because the queen has difficulty in flying with the swarm; and in some cases it may be that a virgin may make her nuptial flight. I don't suppose that trapping the drones had any effect in making the bees stay.

3. Beekeepers are a considerate lot, and anxious to give credit where credit is due. But if you expect to patent anything, it should not be published in advance. One way is to submit your plan to some experienced beekeeper and get his opinion about it. But it's dollars to doughnuts that when a raw recruit has made a valuable discovery it will turn out to be something known years ago.

## Swarming—Foulbrood

1. When a prime swarm issues from a hive, will another come out if I cut all remaining cells but one and leave the old hive on the same stand?

2. I hived a new swarm and put it next to the old stand and moved the parent colony on the eighth day. A few days afterwards a second swarm came out of the old hive. Why was that?

3. I have a foulbrood colony. I found the queen, put her on a healthy brood-frame from another colony, filled out the new chamber with foundation and placed the diseased colony over an escape-board on top of new chamber, so as to get the bees out of the diseased hive. Will that cure them?

4. Can I hive a prime swarm on starters, cut out all cells and place old brood-chamber on top of swarm and make the new swarm stay and work for extracted honey in top chamber without swarming again? NEW YORK.

Answers. 2. It was an exceptional case, occurring because the old colony had become so strong it thought it could afford to swarm. Usually the first afterswarm issues something like eight days after the prime swarm, and moving the hive just before the afterswarm would issue puts the colony in too discouraged a condition to swarm "A few days afterward" sorry you didn't say just how many days gave time enough for the colony to recuperate. Eight days and then "a few days" more between the prime swarm and the first afterswarm is something quite unusual.

3. Possibly it may if the case is European, not if American.

4. Yes.

## Purple Martin

Do purple martins eat bees? I recently purchased several colonies of bees and have been told that the purple martins eat bees. If they do I regret it very much, as I have some 30 or 40 pairs of martins that build on my place every year. Personally I do not believe that they do eat bees. What I mean by the purple martin is the martin that comes each summer and builds in boxes or gourds prepared for them, raise their young and immediately go south again. I don't know whether or not these martins go as far north as Illinois or not. The male is a black purple all over, while the females have a gray breast. All over the south boxes and gourds are put up on poles for these martins to build in and they will not allow a hawk to come near where they are raising their young. They make a peculiar clucking sound entirely different from the noise made by any bird. They are *not* the bee martin, or what is known as the king bird. ALABAMA.

Answer.—I am sorry to say that the purple martin (*Progne subes*) is a rather rare bird in the extreme northern part of Illinois, where I live, although plentiful in my boyhood home in western Pennsylvania, while it lived mostly —I rather think altogether—in little houses or boxes built specially for it, and put up on the tops of poles or else on buildings. I think you are entirely right in counting it innocent of the slaughter of bees.

## Hoffman Frames—Foulbrood

1. Why are the bottom-bars of the Hoffman frames so narrow? I should think it would be better to have them as wide as the end-bars.

2. What causes foulbrood, both American and European? Now don't tell me it is caused by feeding foulbroody honey, for I know that will cause it to spread, but what are the conditions that are favorable for the breeding of the germs that cause it?

3. Would there be any danger in feeding wild honey that is so contaminated by bark, rotten wood, etc., and is unfit for table use, if it is gathered by healthy bees? PENNSYLVANIA.

Answers.—1. I am not sure what are the principal reasons for narrow bottom-bars. One reason may be that the frames are sometimes used to hold extracting-combs, and a narrow bottom-bar is less in the way of the uncapping knife. I am rather partial to frames having end-bars and bottom-bars the same width as top-bars, and have been using them for years.

2. A microbe is the villain that starts the trouble, just as seeds of weeds make trouble in the garden. A weak colony and a weak strain of bees is favorable to its growth. A strong colony of bees with a pure Italian queen is favorable to prevention, and some think that such bees will almost entirely prevent the encroachment of European foulbrood.

3. Such honey will be all right to feed to bees.

## Artificial Increase

1. In your October, (1917) number Mr. Pellett describes a method of artificial increase which I propose to try out next year, if I can be satisfied on one point, viz.: What becomes of the field bees which come and go through the augur hole in top story when this story is moved to a new location? In Mr. Pellett's example 41 days intervened from time of placing story on top and removing same. All brood in this story would, therefore, have hatched, and there should be a great quantity of field bees which know no other entrance than the auger hole. When top story is removed I should expect quite a swarm looking for that hole. Is it likely the bees will find the entrance to the hive below, and, if they did, is there not danger of them being regarded as intruders by the bottom colony, as the two hives have really been separated for a long time? This, of course, could be overcome by plugging the hole after the queen had been mated, when top bees would be forced to exit below. However, as that is not suggested by Mr. Pellett, I should like to know what happens.

2. Do you recommend two stories for wintering, as described by Mr. Romain on page 579 of your November (1917) number? I propose trying this plan next winter, if you think it O. K., but would utilize half-stories, not having sufficient full-depth stories. Do you adopt the plan? BRITISH COLUMBIA.

Answers.—1. You are quite right; when the upper story is set on a new stand all the field bees, upon their return from their first trip to the fields, instead of going to their new home will go to the old location. I've watched with much interest their behavior when they find their accustomed entrance gone. They fly about the place for some time in evident confusion and distress, and finally settle in a cluster upon the part of the hive nearest to where they think their entrance should be. After a time some bee of inquiring turn of mind begins to explore for an entrance and finds the nearest one, even if none is nearer than the regular entrance at the bottom of the hive. Then she sets up a call, and it isn't very long before a line of march is started and the whole outfit make their way to the entrance. There is no quarreling; if the bees have been separated only by an excluder they will have the same hive odor. Even if entirely separated, as I have often had them, there will be no quarreling, probably because the bees coming from the field bring a peace-offering with them.

2. Wintering a colony over an empty hive is a plan in use many years ago, being especially championed by Rev. W. F. Clarke, and I don't remember that anyone who used it ever reported anything objectionable in it. I don't use the plan, as I winter in the cellar.

## Raising Queens—Requeening

1. Is it more assured to attempt making a colony queenright by giving a frame of eggs for same to raise queen-cells than it would be to give a queen-cell from another colony?

2. In a publication I have, it is stated that a good way to requeen is to place a hatching queen-cell in the "super" of the colony to be requeened and paying not attention to the "inferior" queen below; chances being that the virgin will kill the old queen "below." Is it necessary for the above to have a super on the colony, supposing one is mostly in comb honey, and therefore having supers unfit as stated, does it do as well to insert in the brood-chamber a frame from another colony having a queen-cell? Two of my colonies had just one capped queen-cell. As eggs were there I presume the colonies had queens. Do you think they would have requeened without swarming from that one queen-cell? In each case the queen-cell was raised by the colony in question. PENNSYLVANIA.

Answers.—1. I cannot answer too positively, but I suppose that bees conscious of their queenlessness have as much respect for a queen-cell, sealed or unsealed, that is given from another colony, as they do for one started from an egg or larva of their own brood. It is possible, however, that you might be a little more sure of success by giving a frame of eggs and young brood than you would by giving a queen-cell, for bees are somewhat notional, sometimes tearing down cells, even of their own building, when you can see no good reason for it.

2. If a queen-cell were put in a super, with no excluder under, I would expect in most cases that the virgin would be killed upon entering the brood-chamber. If, however, the old queen were one that the bees were about to supersede, the virgin would likely be allowed to take her place. If a frame having a queen-cell, from another colony, were inserted in the brood-chamber, the bees would pretty certainly tear it down unless they contemplated either swarming or superseding. In the case where there was only one queen-cell, and that sealed, it's a very safe guess that superseding was intended, and not swarming.

## Apiary on Shares

I am writing to ask what is customary in a contract where one leases ground for the purpose of placing an apiary, the rent to be

taken out in pounds of honey. How much honey should the owner of the land expect?
KENTUCKY.

Answer.—There is no rule, and no two cases are exactly alike. One man wants the bees on his place for the good they will do in the fertilization of fruit blossoms or other blossoms, and he wants no pay, and indeed would pay something rather than not have them. Another is not interested in bees, is afraid of them and wouldn't have them on the place for any price. In one case a fixed price of $5 or $10 a year is paid; in another 5 or 10 cents a colony. In one case where land is of very high value, the rent should be ten times as much as upon land of little value. If honey is given as pay, its honey value should be considered. A certain per cent of the crop might be given; one or more pounds for every hundred. In any case, if the site is desirable, the compensation should be such that the owner of the ground shall be more than satisfied, and shall want a continuance.

## Robbing

Why does a strong colony of bees with a good queen and plenty of eggs let other bees carry out their honey? How can I prevent it?
MICHIGAN.

Answer.—It is doubtful whether a strong colony in good condition was ever robbed unless the beekeeper did some fool thing to start the robbing. When honey is coming in plentifully there is little danger of robbing; but when the flow stops, look out. Don't open a hive unnecessarily and give the robbers a start. If a weak or queenless colony is attacked by robbers, if you take it away, leaving nothing in its place, the robbers may pitch onto a strong colony close by, and overcome it. So leave the hive in its place until they have cleaned it out, or else put in its place another hive with empty combs, or perhaps a little honey, and when they have cleaned that up they will go about their business without troubling the strong colony. Be careful about spilling honey or leaving bits of comb with honey lying around.

## Swarms

Does a prime swarm have swarms the first year?
WISCONSIN.

Answer.—When you hive a swarm, you may feel pretty safe against its swarming before the next year. Occasionally, however, a swarm does itself throw out a swarm, which is called a virgin swarm.

## Clipped Queens

1. Referring to your answer No. 2 to Idaho, in June number of American Bee Journal, I ask how would the owner know in the evening or later that the colony had swarmed?

2. If the queen had been clipped instead of being kept in the excluder, how could he know?

3. If the queen is not clipped and no excluder is over the entrance, can it be learned whether a colony has swarmed or not?

4. I have sufficient drawn combs for this season, but many are imperfect. I wish better ones for next season. The best of the flow will soon be over, but some nectar will be coming in till frost. Is it practical to get these combs drawn from full sheets of foundation this season, and if so, what is the best way?

Answers.—1. If an excluder is used at the entrance it will be in the form of a queen-trap. Her presence there is sure proof that the bees have swarmed.

2. When the queen is clipped and the swarm issues, it generally returns upon finding the queen is not with it. In that case, it is not easy to tell that a swarm has issued, and only a guess can be made if sealed queen-cells are found in the hive.

3. Only guessing can be done; but if the colony seems weakened in bees, and dead cells are found in the hive, swarming may be guessed.

4 Comb-building can be induced only by a natural flow or feeding. If there is no natural flow the feeding must be heavy, and it is hardly worth while to try to get comb built when the bees are not getting enough from the fields to get honey to put in the combs they build. For there is no way to get the bees to build comb that is not immediately put to use either for brood or honey.

## Introducing Queens

What do you think of the following?

1. Two queens were bought and were placed with most all the brood of the respective colonies on June 24. Queens were accepted and eggs found on first examination. In colony No. 1, on the 7th of July, were many cups with eggs and queen-cells very young; the queen was present. Colony 26 did not have a queen but had a solitary capped queen-cell. To both colonies comb supers were given and good work done therein.

2. I took a queen from colony No. 2 and soon found a queen-cell. After while I found another just like it. The colony has not swarmed as yet. When I went to destroy the queen-cell I liberated a queen. She came out of the cell as I went at it. I put her in colony No. 34, which I had noticed was queenless but had a capped queen-cell. What do you think will become of colony No. 2 and No. 34?
PENNSYLVANIA.

Answers.—1. Colony No. 1 had queen-cells present a week after the introduction of a new queen, the cells containing eggs or brood of the new queen. That's a thing that happens quite often when a new queen is introduced; and I think such cells are usually destroyed by the bees, but sometimes they are left and the queen superseded. In the case of colony No. 26, supersedure evidently took place.

2. Judging from the empty queen-cells present, the probability is that a free virgin was in colony No. 2, which will be laying in less than two weeks. The virgin given to No. 34 was probably killed, having no effect whatever on the condition of the colony.

## Swarm Prevention

1. I had a colony in an 8-frame hive that wintered well. On May 5 I took an empty hive-body, put full sheets of foundation in it and put it under the brood-chamber, thinking they would not swarm; but they did not work down. On June 13 they sent out a swarm; it was hived and put on the stand of the parent colony, moving the parent colony so there was about 3 feet between them. Was that too far?

2. I would like to know why the bees didn't work down in the extra hive-body I gave them. Was it too late in the season?

3. The swarm that came out June 13 was given supers 2 days later, but on June 25, 12 days after they were hived, they sent out a swarm, and on July 5 a second swarm. How can you account for that, so soon after they were hived? I gave them one frame of brood when I hived them, the rest full sheets of foundation. This is the first time I have tried to exchange places with the swarm and the parent colony; it kept the parent colony from swarming any more, all right, but what was gained?
MICHIGAN.

Answers.—1. Yes, it was too far. You should have set the swarm on the old stand and the old hive as close to it as possible without touching; then, 7 or 8 days later, moved the old hive to a new stand 10 feet or more distant.

2. I don't know why they didn't work down. Looks like pure cussedness, for any decent colony ought to have done so. As you gave them the extra room below May 5, and they swarmed June 13, it looks as if there was no excuse for them. Like enough you will not find it happen so again.

3. Giving that frame of brood may have made the trouble. Some think it advisable to give such frame, and then take it away after 2 or 3 days. In this particular case perhaps little was gained, but generally there will be a decided gain, for a strong force of bees will be on the old stand to do good work in supers, and even as it was it was a gain not to have the old colony split up into weak afterswarms.

## Sweet Clover—Alfalfa

1. On page 85, American Bee Journal for March, 1918, we are told that "when cut for hay, sweet clover should be mown before it begins to bloom to any extent." But, alas for the poor bees! If this is the practice, what is the use of the plant as bee forage?

2. I bought some buckwheat seed and tried out a small patch for my bees. The blossom is white, and although the plants have been in full bloom for two weeks, not a bee visits them, nor has the blossom the slightest odor. My man, who at one time lived in Kansas, says the buckwheat there is a pinkish purple blossom, and a marked odor. Apparently I have gotten hold of the wrong kind. Can you give me the botanical name of the variety the bees visit?
BRITISH COLUMBIA.

Answers.—1. Don't worry. In the west, where alfalfa honey is produced by the carload, the same rule holds, and alfalfa must be cut for hay before the bees have much chance at it, but one way and another it turns out that the bees get carloads. Some of it is left to grow for seed, and of course the bees get the full benefit of that, and some cut for hay will by some means be cut a bit late—well, you see, the honey is gotten, somehow. You'll find it the same way with sweet clover.

2. Your buckwheat is almost certainly all right. Whether you have Japanese, Silver-hull, or just common buckwheat, it's all *Fagopyrum esculentum*, and honey-yielding. I think you would call the blossoms white that grow here, although some of them may have a pinkish shade, and it is possible that in other regions the blossoms may be pink. Like most honey-plants, there are seasons when no nectar is yielded. I *think*, too, that it is rather early for it to yield well if it blooms in the first half of July, as it is considered not advisable to sow buckwheat before about the first of July.

## Ownership of a Swarm

If my bees swarm and go on some one else's property, whom do they belong to?

Answer.—If you follow them right up you can claim them.

NEW YORK.

## Put-Up Plan

The way I do, the Put-up plan might be better called the Put-aside or Put-away plan. I do not like to set one hive on the other, so at first I set the hive with the queen in it aside of the parent hive; but as I thought that the bees in the "aside" were not staying well (flew over into the old hive), I set the hive with the queen quite a ways off. If I would grow to a thousand years I would not hunt up queens, nor endanger them by handling; so I separate the queen by setting the parent hive off the stand and put the empty new hive in its place; then put into the latter a frame with little brood, another with honey, and also one with empty comb, and may add some frames with foundation. On all that I place a queen-excluder, and in front, up against entrance, a large board, and on that I brush the bees out of the parent hive; then place latter upon the excluder. Then I brush the bees on that board at the entrance, and the bees walk into the hive-body below. In the evening, or morning, I set aside the parent hive, and then pick up the new hive with the queen in it and set it away on a prepared stand; then put the parent hive on the old site. At the time I put the frames of brood into the parent hive I do the best I can to destroy all queen-cells but the best one. Three or four days later I look over the frames in the parent hives again for destruction of all but the one best cell.

Thus I rarely have any other than good luck in securing the queen in the hive. The only trouble is, that in the hive on the old stand, the new queens seem not forthcoming, and the bees act queerly; they swarm, come back, and in one case repeated that, and both times after that action, on examination, there seemed to be neither eggs nor queen-cells. I really expected eggs only 12 days after the operation of dividing. My hopes were that thus the parent hives would find themselves with new queens instead of by returning the old queens. Is my way right, by rule? If so, why does it not work?

This way looks to me just about the same as Fred W. Hall's whom you call a good beekeeper in answer to the first question in July American Bee Journal, page 243.

The way I secure lots of bees for the hive I set off is, that before I take away that hive I shut up the bees in it by a special contrivance of my own of wire netting (no stuffing up with grass for me), then in two days I remove the wire netting affair, and thus there is no lack of bees with the queen in the set-away.

PENNSYLVANIA.

Answer.—One of the pleasures of beekeeping is the constant opportunity to try new things and to do things differently, generally finding them turn out failures, but occasionally scoring a success. It's a good thing, but a good thing may be carried too far, and in your beekeeping you're an ultraist of the ultraists. If anything is common practice among beekeepers, that's reason enough for you to be fornenst it. If they stuff grass in entrances, it's "no stuffing up with grass for me;" if they hunt up queens, it's not for you in a thousand years, and you'll go to twice the trouble to avoid it. If you keep on, some day it will occur to you that most beekeepers use hives with 8, 10 or more frames, and you'll decide to use only five, and then want it explained why you don't get bumper crops. I can sympathize with you in your discouragement. I've tried fool things enough to make quite a book, and felt the chagrin of failure; but when we find, as you say, "nothing works," we can quit doing so many things differently, do the same as others do and then there's no reason why we should not have as good success as they.

You can put the hive with the queen on a distant stand, and I sometimes do so if only a frame or two of brood are taken with her, but if a considerable amount of brood and bees is taken with her I prefer to put up on top, so as to keep the whole force of bees with the colony at the old stand; for if set for some days on a separate stand a goodly number of field bees would be left at the new stand.

As to the bees swarming out, it may be that you left more than one cell. Often a queen-cell is so hidden that one must be an expert at finding cells not to miss it, and if two cells are left in the hive the bees are practically certain to swarm. It is possible, also, that when the young queen went on her wedding trip the bees swarmed out with her.

My understanding of F. W. Hall's plan is that he removes the old queen and then destroys all queen-cells but one. That gives him the great advantage that he has a young laying queen in each hive, and the chance of such a queen swarming is a negligible quantity. While the plan is excellent in that respect, it is not every one who would want to adopt it, for it has the disadvantage of a rather bad break in egg-laying from the time the old queen is killed until the young one begins to lay, which may be as much as three weeks. Those who are working for constant improvement of stock will also object that the annual renewal of the queen does not favor the full testing of each queen so as to allow the selection of the best as a breeder. Mr. Hall is a very pleasant gentleman as well as a successful beekeeper, and when he sees this, if he finds any misrepresentation I shall be glad to be corrected by him. But the Hall plan is hardly for you, since hunting up queens is an essential part of the plan.

## Queens—Feeding for Winter

1. I bought a nice queen bee in June of this year and she came in good shape, as far as I know about bees. I put her in a new colony, which had been 10 days without a queen. About four or five days later I looked in to see what she had done and found that she had laid a lot of eggs, and in some of the cells were two eggs. I looked in again on the 17th and found that the queen was there, but not a single egg had been hatched out. Why is it that they will not hatch out? Do you think that the eggs will hatch this summer?

2. I also bought another queen, and I put her in the colony which I had just made queenless, and the bees received her all right. She has been in the hive for about 14 days, but has not laid any eggs.

3. I also find that my bees will not get more than 3 or 4 combs drawn out this summer. I put each swarm of bees on ten full sheets of comb foundation to each hive. Should I leave the undrawn sheets in each of the hives, or must I take out what is not drawn out and put them away until next spring?

4. My bees have not gathered honey as yet. The cotton is blooming here and it will bloom until about frost. I do not want to feed my bees until I have to. We have frost in the middle or latter part of October if we have an early fall, and if we have a late fall it will be about the first of November before frost will set in to kill all kinds of crops that bloom. About what time in the fall would you start feeding my bees for the winter?

5. Can you furnish me honey to feed them on, and how much to each hive will it take, and at what price, or would it be better for me to feed sugar syrup? If sugar is used, how much should be used to the hive? Should it be cooked to a thick syrup? Will three-fourths syrup and one-fourth honey be a good feed?

6. Will I have to buy a feeder, or can you give me a good plan as to how to make a good feeder? I am thinking of putting on an empty super and having a tin box made, say about 12 or 14 inches long, 10 or 12 inches wide and 2 or 4 inches deep.

7. If any of the honey or sugar syrup runs out in the hive out of the feeder, will it drown the bees or cause robbing?

NORTH CAROLINA.

Answers.—1. I have had a very few queens in my lifetime, perhaps not more than two or three whose eggs never hatched. I suppose from some defect in the queen. I don't suppose the eggs of this queen of yours will ever hatch.

2. Sometimes it happens that a queen is tolerated by the bees a considerable time, although not allowed to lay, and then she may lay all right; or, she may be then killed. I wouldn't be very hopeful about yours.

3. The sheets of foundation that are not drawn out should not be left with the bees over winter. Indeed, it is not best to leave them there now, if the bees are making no use of them, for they are likely to daub them with bee-glue, and I have known them to daub foundation so badly that they would never draw it out afterward. So if they are making no use of it, it will be well to take it out until honey is yielding again, or until you feed.

4. It would be better to feed before everything is frozen; but as you say you do not want to feed until you are bound to, you may as well wait till after frost, whether that comes early or late.

5. It is quite possible that your bees will get enough for winter from the late flow, but if not, I think Dadant and Sons can supply your needs, but would hardly be able to quote a price until later. Each colony should have not less than 30 pounds of honey, or its equivalent in sugar syrup; and 40 pounds would be still better. If you feed sugar syrup, it needs no cooking, only so that the sugar is dissolved. But it will dissolve more rapidly if you stir the sugar slowly into boiling water. Whatever you do, don't scorch it if you don't want to kill your bees. For such late feeding, sugar syrup should be thick, say at the rate of 5 pounds of granulated sugar to 2 pounds or pints of water. I would rather have honey than sugar for winter food, although some prefer sugar. At any rate, at the present prices of honey and sugar most beekeepers would feed at least part sugar. I would very much rather feed the mixture you propose (one-fourth honey and three-fourths syrup) than to feed all sugar. If you feed all sugar you should use a level teaspoonful of tartaric acid to 20 pounds of sugar. If you use one-fourth honey, no acid will be needed.

6. For feeding you can use a box such as you propose, preferably of wood with melted paraffin or wax run around the corners, but there must be something to keep the bees from drowning, such as excelsior or cork chips.

7. There would be hardly any danger of drowning bees with a leaky feeder, but there would be danger of robbing. Feeding after bees stop flying in the evening makes the danger less.

## Laying-Worker

This spring I purchased two colonies for $25. I determined to run principally for experience, with possibly some increase this year.

My first swarm came off June 13, and I hived them on the old stand, gave them a full depth super, full of sheets of foundation. This colony has today two supers, seven frames full, and working like mad. On June 15 I hived what I first thought to be a swarm from my second colony, but on finding a queen in the hive of the second colony as well as with the swarm, I decided that it was an afterswarm from No. 1. I hived them and after two hours this afterswarm took French leave and left me where I was before.

I then, that day, June 15, went through my first colony, the one which swarmed two days before, and found not only the queen, but five or six ripe queen-cells. This certainly put me up in the air, so I decided that right here was where I was going to do my first turn at increase. I took two frames of bees and brood with two cells, put them in a hive with two full sheets of foundation and sat down to await developments. In due time I went through my small nuclei and found both cells had hatched, but was never able to find a queen among them. Otherwise this division appeared to be contented and was bringing in nectar and pollen; however, in a short time I began to suspect laying workers. I found worker cells capped with drone cappings. I could not find queen-cells any place, so I took another frame of brood from the original hive. I had replaced the first two with foundation, and this made three frames taken from this hive. The division, however, did not build any cells on the third frame, and to my surprise, I began to find not only worker cells with drone caps, but also a few worker cells on the first frames with regular worker cappings. Here was another nut for me to crack. I had ordered queen from a breeder, realizing that my chances for a successful introduction was slim, and now I have read in the American Bee Journal for August an article by John H. Lovell on Parthenogenesis, in which the theory is that at times laying workers produce both drones and workers. So now, after what I fear a long drawn out introduction which will likely try your patience, I have arrived at the question.

First—Do laying workers at times produce both drones and workers? If so, what will be the functions of such workers produced from layer eggs?

Second—We are led to believe that bees work largely from instinct, governed largely by work necessary, and are not the intelligent creatures which fiction has sometimes led us to beleve; then how do bees, in your opinion, differentiate between infertile eggs laid by workers in worker cells and thus cap them with drone cappings?

These are the questions which are particularly disturbing me, although there are a hundred and one other which would like to know just exactly what is your opinion about. I will not, however, take the attitude of a former questioner who wrote you asking you to ask one hundred and fifty questions and answer them at the same time. I will, however, later buy your book, "One Thousand Questions," etc., and possibly I will find some of them already answered.

I have read several books on beekeeping and without attempting to flatter you, my dear Doctor, I can truthfully say that I never read any book which gave me the keen delight which your "Fifty Years Among the Bees" did.

I, with the rest of the bee world, big and little, have become accustomed to reading not only in your delightful book but in your correspondence in Gleanings and the American Bee Journal, your characteristic "I don't know," and also your little joke, "I don't know enough to answer," but you do not fool us any; if you do not know, who does? My opinion is that you probably know as much about bees as any man could who is no older than you are and has devoted practically his whole life to the study; but as a man of high inteligence, you are only resorting to these harmless subterfuges in the knowledge that some of the works of old man Nature are beyond human understanding. For instance, we are led to believe by all writers that certain bees function in certain things at certain times. The "books" say young bees build comb, feed young larvæ, do sentry work, etc., and goes on and says that they change and relieve each other at times. I shall not be simple enough to ask you why at certain times or what is the ruling spirit of a colony of bees—in short, who is the "boss," and what prompts these "insects with small intelligence" to do these things so methodically, but I would like to know just the same. In my small way I have found out, however, that they will often do the unexpected, and that "Old Man Experience" is about the best criterian to go by, and sometimes he fails.

W. E. MEANS.

ANSWER.—The story of your experiences, which you call "a long drawn out introduction," is very interesting, and I'm glad you gave it. If your question about workers being produced from the eggs of laying workers had been asked before the appearance of the August American Bee Journal, I should have replied that in no case do anything but drones proceed from the eggs of laying workers; but that if by any means laying workers should get into the business of rearing workers, I should expect them to be no whit different from workers in general, as to all their functions. But in the August number, page 270, John H. Lovell says: "It is less surprising to learn that in some instances there are laying workers of the honeybee which can also produce both drones and females." Prof. Lovell is a man for whose assertion I have high respect, and, moreover, he is a man for whom I have a decided liking, although I have never seen him. Yet, in spite of all that, I do not feel inclined to make much change in my answer, nor, indeed, to make any change, except to add, "the exceptions to the rule are so exceedingly rare as to be not worth considering in actual practice." And I feel warranted in saying this from the fact that for a good many years I have been reading a large part of what has been said about bees, and never before have I heard of such a thing as a worker bee being produced from the egg of a laying worker.

Now, it would be just like you to think—even if you don't say—"But how about that flat capping in the case of my own laying workers?" Well, if you don't mind, let's go back and look over your story. In the first place, although you raise no question about it, it is interesting to note that you report a prime swarm June 13, and an afterswarm June 15. Only two days between hte prime swarm and the first afterswarm, although the rule is that the first afterswarm comes about 8 days after the prime swarm. It may happen, however, that when the first queen-cell is sealed, at which time the prime swarm issues generally, the weather may be bad, so as to delay the issuing of the prime swarm a day or more, thus lessening the time between the prime swarm and the first afterswarm. But to have the weather so bad continuously as to delay the issuing of the prime swarm 6 days is something unusual, and I feel inclined to account for the closeness of those two swarms in another way. Here's what may have happened: About June 5 a prime swarm issued without being observed by you, and the queen was in some way lost. Such things happen. The swarm, being queenless, returned to the hive. June 13 the first afterswarm issued, and June 15 the second afterswarm. All of which is merely by the way.

We come now to the nucleus charged with having laying workers. Pardon me if I say I don't believe there were any laying workers in the case, but a laying queen. You say you did not find a queen. That proves nothing. Queens are not always found, even when we are sure they are present. "But the drone-brood?" Well, it often happens that a young queen seems not to get the hang of properly laying for some time, and a large part, or all, of her brood, is drone brood, and later she performs all right. Sometimes, also it happens that a young queen lays mostly drone eggs, and continues to do so as long as she lives.

You want to know how bees differentiate between the two kinds of eggs when both are laid in worker-cells. That's easy, at least if guesses are allowed. The drone-larva is so much larger than the worker-larva that the bees are obliged to build a canopy over it if they cover it at all.

You might send on, say about a dozen, of the 101 questions you have on hand. Maybe I can match most of them by drawing on the pigeon-hole labeled "I don't know."

---

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

Honey arrivals since last report:

**Medina, O.**—Alabama 1133 lbs., Mississippi 26,917 lbs., North Carolina 15,665 lbs., Florida 11,284 lbs.

Shipping point information, August 14:

**Los Angeles,** Calif.—Supplies cleaning up. Demand active, firm feeling. Cash to producer on farm—Extracted: White, 21½-23c; light amber, 20½-21½c; amber, a few sales at 15-18c per lb. Comb honey: $6-6.50 per case. Beeswax: 34-36c per lb.

**San Francisco, Cal.**—Shipments liberal. Demand and movement good, steady feeling. Wagon loads track side—Extracted: per lb., water white, 22-23c; sage white, 21-22½c; Alfalfa white, 20-21c; light amber, 19-20c; dark amber, 15-16c. Beeswax, 33-35c per lb.

**Caldwell, Idaho**—(unofficial) — No sales. Inquiry steady. Crop not made yet.

**Yakima, Wash.** (unofficial)—Shipments light. Growers holding for higher prices. Few sales reported. Cash to producers: Alfalfa white, in 5-gal. cans, 22½c per lb.

**Portland, Ore.,** Aug. 14.—Demand active, strong feeling, some growers holding for higher prices. Cash to producers—Extracted: Amber, 15-18c per lb.; light amber, 17-21c; white, 20-24c. Comb honey: $4.75-5.25 per case. Sales to manufacturers: Amber, 18c per lb.; light, 22c; white, 25c. Sales direct to retailers—Extracted: Water white alfalfa, 5-gal. jackets, 27c per lb.; 2-gal jackets, 29c per lb.

**Spokane**—Receipts very light. Sales direct to retailers—Yakima district: Alfalfa white, in 5-gal. cans, 25c per lb.

**Cincinnati**—1,700 lbs Florida, 988 lbs. Kentucky, 3,510 lbs. Alabama arrived. Supplies very light. Demand and movement slow, market firm, few sales. Sales to jobbers—Extracted: California, white orange, 25-26c per lb. Beeswax: Demand and movement slow, market steady, few sales. Average yellow, 37-40c per lb.

**Denver**—Approximately 100,000 lbs. extracted, 1,399 cases comb arrived. Demand and movement good, firm feeling. Quality and condition generally good. Sales to jobbers—Comb, 24-section cases, No. 1 white, $6.50; No. 2, $6. Extracted: White to light amber, 23-25c per lb.

**Kansas City**—14,200 packages by express and approximately 750 lbs. extracted by freight arrived. Receipts very light. Demand poor, movement limited, weak feeling. Sales to jobbers—Comb: Native Missouri, quality and condition generally good, 24-section flat cases, light, $6.50-7.50. Extracted, quality and condition generally good, 18-23c per lb. Beeswax: Receipts very light. Supplies light. Demand light, movement limited, firm feeling. Sales to jobbers, 35-38c per lb.

**New York**—317 bbls. and 25 tierces Porto Rico, 1 car California. Receipts moderate, demand light, movement slow, market firm. Sales to jobbers—Extracted, per gal., Porto Rican, $2.35-2.45, mostly $2.40; California, light amber, $3.00-3.12; white, $3.20-3.25. Beeswax: Arrivals 178 bags West Indies; 4 bbls., 8 boxes, 19 bales, 6 bags Porto Rico; 42 bags Cuba. Receipts increasing. Demand and movement good; market firm. Per pound, yellow, 43-44c; dark, 42-43c; some poorer as low as 37c.

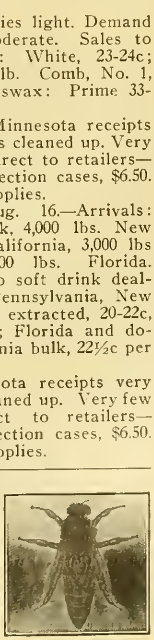
**St. Louis** — No arrivals. Supplies light. Too few sales to establish market.

**Chicago** — Supplies light. Demand and movement moderate. Sales to jobbers—Extracted: White, 23-24c; amber, 21-22c per lb. Comb, No. 1, 27-28c per lb. Beeswax: Prime 33-38c per lb.

**Minneapolis** — Minnesota receipts very light. Supplies cleaned up. Very few sales. Sales direct to retailers—Comb honey: 24-section cases, $6.50. Extracted: No supplies.

**Philadelphia,** Aug. 16.—Arrivals: 7,000 lbs. New York, 4,000 lbs. New Jersey, 1 car California, 3,000 lbs Pennsylvania, 90,000 lbs. Florida. Sales principally to soft drink dealers; New York, Pennsylvania, New Jersey, 5-gal. cans extracted, 20-22c, mostly 20c per lb.; Florida and domestic, 22c; California bulk, 22½c per lb.

**St. Paul**—Minnesota receipts very light. Supplies cleaned up. Very few sales. Sales direct to retailers—Comb honey; 24-section cases, $6.50. Extracted: No supplies.



Write for Price List and
Booklet descriptive of
HIGH GRADE
Italian Queens
JAY SMITH
Route 3
Vincennes, Ind.

# Classified Department

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

## BEES AND QUEENS

FOR SALE—1 untested Golden Italian Queen, 65c; hybrids, 25c. J. F. Michael, Winchester, Ind.

ITALIAN QUEENS—Northern-bred, three-banded, highest grade, select untested, guaranteed, queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, $1; twelve, $10; fifty, $35. Send for circular. J H. Haughey, Berrien Springs, Mich.

FOR SALE—Golden Italian queens that produce good honey gatherers; no foulbrood. Select tested, $1.25; tested, $1; untested, 75c; 6, $4.25; 12, $8 No bees for sale. D. T. Gaster, Rt. 2, Randleman, N. C.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook, 1Atf 84 Cortland St., New York City.

NO MORE QUEENS this season. Root's beekeeers' supplies.
A. W. Yates, 3 Chapman St., Hartford, Conn.

FOR SALE—Northern Bred Italian Queens; hardy, prolific goldens, each, $1; six, $5. Allen R. Simmons, Claverack, N. Y.

FOR SALE—Three-banded Italian queens; untested, one, $1; six, $5; twelve, $9. Tested queens, $1.50 each. Rob't B. Spicer, Wharton, N. J.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50. Garden City Apiaries, San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50. H. G. Dunn, The Willows, San Jose, Calif.

FOR SALE—Pure Italian queens; goldens that are golden, and Doolittle's choice stock. Select untested (laying queens), 1, $1; 6, $5. tested, $1.50; best breeders, $5. For large lots write for prices. Pure mating, safe arrival and satisfaction I guarantee. J. E. Wing, 155 Schiele Ave., San Jose, Calif.

SWARTS GOLDEN QUEENS produce golden bees of the highest qualities; satisfaction guaranteed. Mated $1. 6 for $5; tested $2. D. L. Swarts, Lancaster, O., Rt. 2.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, $1; tested, $2. Wallace R. Beaver, Lincoln, Ill.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed. O. D. Rivers, Route 4, Honey Grove, Texas.

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease.
Wilmer Clarke, Earlville, Madison Co., N.Y.

FINEST ITALIAN QUEENS, June 1 to November, $1 each; 6 for $5. My circular gives safe methods; free. J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

THREE-Banded and Golden Italian Queens and pound packages from the Sunny Southland. Grant Anderson, Rio Hondo, Texas.

QUEENS—Three-banded Italians, selected, untested, $1.50; selected, tested, $3; selected, tested breeders, $10. Safe arrival and satisfaction guaranteed.
Clinton Bradney, Monson, Mass.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

FOR SALE—Three-banded Italian queens; select untested, one, $1; six, $5; 12, $9; also a limited number of ten-frame colonies with young queens in new hives for $12 each. A. E. Crandall & Son, Berlin, Conn.

REQUEEN with Simmons's Italians; bred for business. Each, $1; six, $5.
Allen R. Simmons, Claverack, N. Y.

## HONEY AND BEESWAX

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section. Charles Israel Bros.' Co., Inc., 486-490 Canal St., New York.

QUICK CASH for extracted and comb. Send sample, or describe and say price.
Bruner, 3836 No. Kostner Ave., Chicago.

WANTED—Would like A No. 1 extracted and comb honey at once. Write to Emil Strudel, 1393 12th St. Milwaukee, Wis.

CASH paid at your bank for carlots and less, of comb and extracted honey.
Wesley Foster, Boulder, Colo.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.

**WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.**
**E. B. Rosa, Monroe, Wis.**

## LIBERTY HONEY LABELS

have led all others for more than 9 years. Samples will show you why. Our catalog is free. Send for it today—NOW—while you have the address before you. The war has not affected our prices.

**Liberty Co., Sta. D, Box 4011, Cleveland, Ohio**

## WAR SAVINGS STAMPS DELIVERED TO YOUR HOME

**Tear Out—Fill In—Hand Letter-Carrier—or Mail to Post Office**

TO THE LOCAL POSTMASTER:—Kindly have letter-carrier deliver

to me on ______________ (Date) ______________ for which I will pay on delivery:

______________ (State number wanted) $5. U. S. WAR-SAVINGS STAMPS at $______________ (See prices below) each

______________ (State number wanted) 25c. U. S. THRIFT STAMPS at 25c. each.

Name ______________________________

Address ______________________________

**W.S.S.**
WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

W. S. S. COST DURING 1918

| | | | | | |
|---|---|---|---|---|---|
| April | $4.15 | July | $4.18 | Oct. | $4.21 |
| May | 4.16 | Aug. | 4.19 | Nov. | 4.22 |
| June | 4.17 | Sept. | 4.20 | Dec. | 4.23 |

W. S. S. WORTH $5.00 JANUARY 1. 1923

## QUEENS THAT WILL PLEASE

**OVER 20 YEARS OF CAREFUL SELECTING AND BREEDING**

GUARANTEE

You take no risk in buying my Queens, for I guarantee every Queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction.

They are bred from **Imported** stock. The very best bees for honey gathering and gentleness. They are not given to swarming and are highly resistant to disease. Give me your order and if, after you have given my queens a fair trial, you are not satisfied in every way that they are as good as you have ever used, just return them and I will send you queens to take their places or return your money with any postage you have paid out on returning the queens.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $ .75 | $4.25 | $8.00 |
| Select Untested | 1.00 | 5.00 | 9.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Untested, $60 per hundred.

**L. L. FOREHAND : : FORT DEPOSIT, ALA.**

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

## HONEY LABELS

SEND TODAY for samples of latest Honey Labels. Neat, attractive labels at lowest prices. Catalog free
Liberty Pub. Co.,
Sta. D, Box 4-H, Cleveland, O.

## SITUATIONS

WANTED—Experienced bee man; salary and percentage of net profits, to begin work in December. Students' Bee and Honey Co.,
1421 Josephine St., Berkeley, Cal.

## WANTED

WANTED—A good honey location to start a line of apiaries; will give a suitable reward for the best reliable information.
D. E. Lhommedieu, Colo, Iowa.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Second-hand honey extractors; tell me what you have and price; also wax presses. W. D. Soper, Jackson, Mich.
Dealer in all kinds of Bee Supplies.

## FOR SALE

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Price $80 er acre; $7,000 for farm and bees, 150 extracting supers with combs, 100 excluders, 2-frame extractors, 2 large honey tanks, 150 shallow supers. Terms, $3,000 cash, balance on time. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling. W. M. Penrod, Ronneby, Minn.

FOR SALE—Shallow extracting supers, 8-frame 50c, 10-frame 55c each, in lots of 5. Wood-bound zinc, 22c; wood and zinc, 24c. A few 4x5 or 4¼x1½ No. 2 sections at $4 per 1,000. Write for prices on other goods.
H. S. Duby, St. Anne, Ill.

FOR SALE—200 8-frame, one-story colonies extra fine strain Italian bees, with queens, $6 per colony. All free from disease, with stores for winter. Will sell with location or without. The average amount of honey made per colony this summer was 125 lbs. A bargain; f. o. b. here.
E. R. Heim, Three Rivers, Tex.

FOR SALE—Golden Seal seed, $1 per 1,000.
S. Pitts, Stronghurst, Ill.

FOR SALE—A nice bee and honey business in a never failing locality. Bees are all fine Italian and we have a good honey trade. Reason for selling, not able to do any more work.
Louis Werner, Wood River, Ill.

FOR SALE—House and 17 acres of land, with 200 colonies Italian bees, fully equipped for extracted honey, in sure location, eastern New York.
P. W Stahlman,
West Berne, N. Y.

FOR SALE—Good second-hand 60-pound cans, two cans to the case, at 60 cents per case f. o. b. Cincinnati. Terms, cash with order.
C. H. W. Weber & Co.

FOR SALE—Twenty 35-gallon cypress bbls. of tupelo and gallberry honey, at $100 per bbl., in any quantity A. Irish, Ludowici, Ga.

**CANS AND SHIPPING CASES**

We have a fine stock of Five-Gallon Cans and Shipping Cases; also Comb Foundation, Extractors, Honey Tanks, etc. Quick shipments.

MADE RIGHT
BEE SUPPLIES
*Quality ... Service*

**THE KRETCHMER MFG. CO.**
**301 Eleventh Avenue**
**Dept. A** **COUNCIL BLUFFS, IOWA**

**"Practical Queen-Rearing"**

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointers in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.
(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

**BEEKEEPERS**
**KEEP IN TOUCH WITH**
**Leutzinger & Lane**
**236-238 Drumm St.**
**SAN FRANCISCO, CALIF.**

**Buyers of EXTRACTED and COMB HONEY**
**Shippers and Exporters of HONEY**

[ The WORLD is Our Market ]

# Crop Report and Market Condition

For our September number we asked reporters to let us know how the crop compared to last year, and about what amount would be secured per colony. Also if they had sold their honey and at what price, and what offers were being made by buyers.

### THE CROP

We are likely safe in saying that the crop will not measure up to that of last year, and last year's crop was hardly up to the average.

In the New England States there will be about half as much as last year, and the extreme losses during last winter will need another year to be recuperated.

New York has half a crop, or about the same as last year, possibly a little better. Some sections report much better, but the average is about as stated above.

Ohio claims a fine crop—much better than last year.

Illinois is probably a little better than in 1917, since the 1917 crop was a failure.

Indiana has little, Missouri is poor, as is Kansas, and most of Iowa has had a crop failure, the western portion being the exception. This is the region where sweet clover plays such an important part.

Michigan will hardly have half a crop, the State over. But in the northern peninsula there has been a very good crop and the new beekeepers there are enthused.

Wisconsin has had an absolute failure. It is reasonably certain that much sugar will have to be fed to bring the bees through the winter in any shape.

Most of Minnesota reports a failure, the biggest apiarist there stating that he may possibly get 20 pounds per colony.

The sweet clover part of the Dakotas and Nebraska will have more honey than last year, and the same is true of Oklahoma.

The South has a fair crop, though Georgia and Florida can hardly keep up to the 1917 crop, which was unusually large. Kentucky and Tennessee are probably a little above a year ago.

The Colorado average is probably up to last year, though one large association there claims only about a half crop. Some few claim more honey than in 1917.

Texas has had another hard year, but better even at that than 1917, when there was little honey.

In Idaho the crop is in excess of 1917, as it is also in Wyoming and Utah. Montana will have about the same as a year ago. In Washington the crop will hardly be up to average.

Reports from California are conflicting, but a majority of them report from two-thirds to three-fourths of last year, while some claim failure and a few state they think that the crop will about equal 1917.

### HAVE LOSSES BEEN MADE UP?

It is very doubtful if we have as many bees yet as we had at the beginning of the 1917 season. Many beekeepers have put forth every effort to get their colonies strengthened and have made divisions at least to cover all combs, but there are many of these divides that will have to be united to go through the winter, owing to the failure of the honey crop which would have helped made them strong colonies.

In our own yards, it is remarkable the amount of stores the bees have used up since the slow and small clover flow of spring. In preparing to move several yards into the lowlands of the Mississippi in the hopes of their filling up for winter, we found little danger of overloading the trucks with heavy colonies. Much honey has been consumed in the last month.

### HONEY PRICES

Very few prices are being suggested at a basis lower than 20 cents f. o. b. producer's point for extracted. The majority of offers in carlots by buyers range between 20 cents and 22½ cents f. o. b. shipping point, put up in 5-gallon cans. One or two offers have been made f. o. b. California points as high as 23 cents, but we believe these to be the exception.

Comb honey is being offered at from $5.50 to $6.50 per case. f o. b. shipping point, but relatively little of this has been sold, most buyers not being ready for the market, and waiting to see where the price will stabilize.

### PRICES EXPECTED

Most beekeepers will be satisfied with a price of 25 cents for extracted honey, at least none have shown an attitude of holding for more than this, while many have sold their honey in the neighborhood of 20 cents, net.

One Wyoming beekeeper, who has 80,000 pounds of extracted and 70,000 pounds of comb, expects to get 25 cents and $6.50 per case. A fair return for 1918, at least.

### WHERE WILL PRICES GO?

It is hard to tell where prices will go on honey. Will they get up to 30 cents wholesale, as some seem to expect?

The demand by trades which must resort to other sweets besides sugar, such as fountains, ice-cream manufacturers, soda water men, etc., has helped stimulate the demand.

The foreign demand is still good, also.

The beekeeper who is profiting by these prices and selling his honey in car lots must remember, however, that when the time of stabilization comes he may be glad to have his home markets to fall upon, and that he should keep them supplied if possible now, goes without saying.

A recent letter from Australia states that there is one consignment of honey lying in port there of 400 tons, unable to move owing to the lack of ships. This is only one, probably, of many in different ports of the world. When shipping does become easier, this competition is bound to have its effect on our own prices here. When this will come it is hard to tell.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item,** a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping,** or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## Texas Queens

**No more bees in packages, but queens galore from June 1 to October 1. Untested, 75c each, $8 per doz.; tested, $1.25 each, $12 per doz. I have the Three-banded Italians and Golden Italians; very choice stock.**

**GRANT ANDERSON,**
**Rio Hondo, Texas.**

## Weis Fibre Containers

FOR EXTRACTED HONEY

Neat, clean, leak-proof, and inexpensive. Especially adapted for home market.

Send for prices. Samples, postpaid, 15c in stamps.

**M. H. HUNT & SON, Agents**
**LANSING, MICHIGAN**

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.

**American Bee Journal, Hamilton, Illinois**

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

## Attention Eastern Beekeepers

**WE HAVE A COMPLETE STOCK OF**

### Lewis Beeware and Dadant Foundation

We are located on a main line of the New York Central and the West Shore, as well as branches of the Pennsylvania and Erie Railroads; also the Rochester & Syracuse Electric Line, which assures prompt delivery. Parcel Post orders receive prompt attention.

Five and ten-pound pails, also five-gallon cans and glass jars.

Queens, three-banded and Golden Italian, ready for delivery now. Untested, $1 each; 6 for $5.50; 12 for $10; tested, $2; 6 for $10.

Safe delivery guaranteed, dead queens being replaced upon their return.

**THE DEROY TAYLOR CO.**
**Newark, New York**

## Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly.

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**No Nuclei or Bees by Pound.**

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**
**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# QUEENS Hardy, Long Lived and Disease Resisting QUEENS

**Twenty-Two Years of Select Breeding Gives Us Queens of Highest Quality--Queens for Honey Production--Queens of Unusual Vitality**

*"There are few Queens their equal and none better"*

## WHAT BEES DO, HEADED BY OUR QUEENS

"One swarm made 185 sections of honey and another 296 sections. I am well pleased."—Melvin Wysong, Kimmell, Ind.

"Your bees averaged 150 pounds of surplus honey each. I find them not only hustlers, but gentle."—Fred H. May, Meredosia, Ill.

"I have tried queens from several different places and like yours best of all."—C. O. Board, Alabama, N. Y.

"We are only one mile from Lake Erie and exposed to high, cold winds; in fact, this is the windiest place along the great lakes. Your bees were able to stand the winter with only an insignificant loss, and we would have no others. As for honey, they averaged 175 pounds of extracted surplus, did not swarm, and gave an artificial increase of 30 per cent, which is as fine a record as can be had in this locality, especially when the work is done entirely by amateurs." Name furnished on request. North East, Pa.

**Price List of Our Golden and Three-Banded Italian Queens**

| | | | | | |
|---|---|---|---|---|---|
| Untested | $ .75; | 25 or more, $ .60 each | Select untested | $ .90; | 25 or more, $ .75 each |
| Tested | 1.50; | 25 or more, 1.25 each | Select tested | 1.75; | 25 or more, 1.60 each |
| Virgins | 30c each | | | | |

We guarantee safe arrival of all Queens, that they are very resistant to European foulbrood, and, in fact, will give complete satisfaction. Wings clipped free of charge. Our capacity is 2,000 Queens monthly.

**M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.**

# Mr. Beekeeper:

Increase your honey crop by giving the bees all the super room that they can fill.

We will help you by furnishing you with fixtures ready for use, at the lowest prices.

Hives and supers, nailed and painted; frames, wired and filled with full sheets of foundation; sections, filled with foundation, can be shipped on short notice.

The Lewis Line is in the lead with the live honey producers.

**WESTERN HONEY PRODUCERS**
**Wholesale and Retail Distributors**
**SIOUX CITY, IOWA**

# That Good Queen

in your colony that is two years old. Are you going to try her another year? Are you going to gamble on your next spring's crop? Probably she has kept your colony booming for two years. If she hasn't you don't want her. If she has **Don't** keep her. **Why?** Because she has "exhausted herself." She is no longer a young queen. Next spring she will fail you. Your colony will be weak. And in the spring rush the flow will be over before you can get another. Don't risk your 1919 crop for the sake of 75c. Why not requeen this fall with

## Forehand's Three-Bands

THE THRIFTY KIND

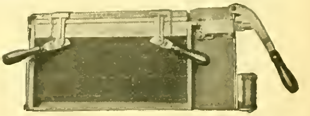
and be sure of your next spring crop. Over a quarter of a century of select breeding brings them up to a standard **Surpassed by None but Superior to Many.** We guarantee pure mating, safe arrival, and perfect satisfaction.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $ .75 | $4.25 | $8.00 |
| Select Untested | 1.00 | 5.00 | 9.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Write for circular

**W. J. FOREHAND & SONS**

Fort Deposit, Alabama



PAT. APPLIED FOR

## C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

## MOTT'S NORTHERN-BRED ITALIAN QUEENS

that resist disease well. Those that resist disease must be hardy, prolific, and hustlers; they are gentle. Bees per pound. Plans on "How to Introduce Queens and Increase," 25 cents. List free. Untested $1 each.

**E. E. MOTT, Glenwood, Mich.**

## BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

MARSHFIELD GOODS

BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

Our Catalog is free for the asking

MARSHFIELD MFG. CO., Marshfield, Wis.

EARLY ORDER DISCOUNTS WILL

Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

A BIG STOCK OF

BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in trade at highest market price.**

CHAS. MONDENG

159 Cedar Lake Road MINNEAPOLIS, MINN.

PORTER BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lewistown, Illinois, U. S. A.
Please mention Am. Bee Journal when writing

Comb Honey Shipping Cases

Our shipping cases are all accurately made of nice basswood lumber. This makes a very attractive, neat and strong package.

Send for our Catalogue.

AUGUST LOTZ COMPANY
BOYD, WISCONSIN

QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

R. O. COX
R. F. D. No. 4, Greenville, Alabama

Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4.25; doz. $8.00 select tested, $1 25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35; 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk. No disease.

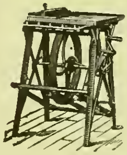
J. F ARCHDEKIN,
Bordelonville, Louisiana

BEE SUPPLIES

Let Us Figure With You

We know we can satisfy you on price and $8.00; select tested, $1.25.

C. C. Clemons Bee Supply Co.
Dept. S., Kansas City, Missouri



BARNES' Foot-Power Machinery

Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS

# YOUR PRINTING

WINDMILL POWER printed "Gleanings in Bee Culture" forty-five years ago. Now an up-to-date plant with every facility does this work. This plant is at your service. Whether you want books, booklets, circulars, stationery, labels, tags, cartons, tickets or tree-labels, this plant is equipped to do your work promptly and well.

As a trial order, let us print you some letter-heads and envelopes. Or a nice, neat business card with a little carefully selected advertising on it will astonish you with its results.

*Remember:* We have a large stock of cuts of bees, queens, hives and supplies. Also cuts of chickens, rabbits, flowers, apiaries, etc. Send for our sample booklet of cuts today. If interested in honey labels, send for our special honey label catalog at once.

? *Wont you send us a trial order for some printing today* ?

**The A. I. ROOT CO., Medina, O.**

# Lumber that Lasts?

## Here's a Convincing Case of an Experienced Beekeeper who ——

**( But let the gentleman tell it himself ):**

CYPRESS RESISTS ALL ROT INFLUENCES

CYPRESS LASTS PRACTICALLY FOREVER

*BUCK GROVE, IOWA, February 2, 1916.*

*"I have been a Cypress man for lo, these many moons. Almost all my dovetail hives are of Cypress, as are bottom-boards, and I think, shallow telescope covers. My hive stands are of Cypress, and stand in the mud and wet all the time and are as solid as when I got the first one some years ago. Cypress is a trifle heavier than white (cork) pine, but not much more than the heavier grade of pine now used. The fact that it is 'everlasting' compensates for all this." (Signed) A. F. BONNEY, M. D.*

For a job of repairing or for equipment, the lumber that will give you the greatest real investment value in the market is Cypress, commonly known as the "Wood Eternal." This wood does not rot down like most woods; it lasts and lasts and LASTS, and LASTS and LASTS. It is the Gopher Wood of the Bible—Noah built his ark of Cypress. Since the days of Noah, Cypress has been famous for endurance under the most trying conditions. **Cypress is the one certified Greenhouse wood. That's "some" test. Bottom-boards are another.**

## GET A BOOK---IT IS FREE

There are 12 volumes in the internationally famous Cypress Pocket Library, and each is authoritative in its field, and all are FREE. Vol 1 is the U. S. Gov't Report on Cypress that is a good authority, surely. Vol. 4 is the Barn Book, with plans and specifications for building. Vol. 36 is the Carpentry Book, making easy a dozen hard jobs of carpentry. Vol. 19 is the Canoe and Boat Book. Vol. 37 is the Silo Book. All are free for the asking. Suppose you ask for one or a dozen, right away.

## WORTH INVESTIGATING

This Cypress wood matter is worth investigating. Just write our "All-round Helps Department."

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA.

1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

# AMERICAN BEE JOURNAL

RARY
OCT 2 - 191
Agricultu
College

OCTOBER, 1918

DO YOU EAT HONEY? WE DO.

# Ready Money for Your Honey

### SHIP IT NOW

If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

### PROMPT REMITTANCE

Remittance sent by return mail for every shipment we receive. Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

### OLD COMBS and CAPPINGS

Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

### WANTED---COMB HONEY

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

## Our New Home

We are now located at Pearl and Walnut Sts., and have the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

## We Sell Lewis' Beeware

"Lewis" stands for the highest quality Beeware known. It is safe and reliable. "Made like furniture." We are glad to fulfill your needs.

SEND FOR OUR 1918 BEE CATALOG

**DADANT'S FAMOUS FOUNDATION**

**ROOT'S SMOKERS and EXTRACTORS**

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
CINCINNATI, OHIO

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price Postpaid $1**

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price Postpaid $1.25**

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price Postpaid $1**

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price Postpaid $1.50**

ALL FOR SALE BY

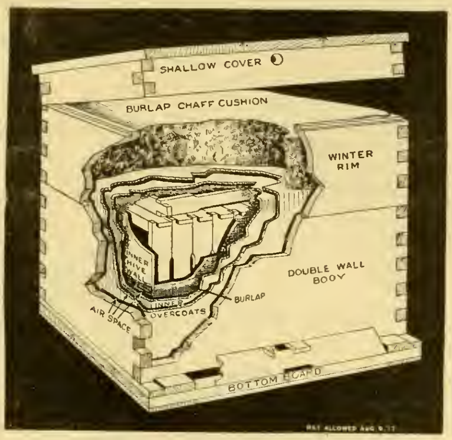
**AMERICAN BEE JOURNAL**

HAMILTON, ILLINOIS

# WINTER PROBLEM SOLVED

BY

# THE HIVE WITH AN INNER OVERCOAT



**The Inner Overcoats did it** During the severe winter of 1917-18, there was a little apiary of thirty-seven colonies, near Grand Rapids, Mich. Seven of these swarms were in Protection Hives with the Inner Overcoats, all of which came through in perfect condition and without loss. Thirty of the swarms were in the hives without the Inner Overcoats and they suffered a loss of some 40% to 50%. This was a severe test, as the temperature went as low as 20 degrees below zero, for many weeks. The value of the bees that were lost, had they been saved, would have more than paid for new hives for the entire lot.

Have you ever stopped to think what it would be worth to you to insure your bees against winter losses? The life of a Protection Hive will be at least 25 years. Now figure what the cost will be per year, spread over its life time. You cannot afford to buy anything else. You need a certain amount of protection from cool weather during Spring and Fall. Get away from the winter packing-case nuisance, with all its expense, extra labor and inconvenience. With Protection Hives you have a neat, compact and efficient equipment.

Protection Hives are made of ⅞ material in the outer wall and will last a life time, as they are not permanently packed. The packing in a permanently packed hive, in a comparatively short time, will absorb moisture, become matted down and not occupy more than two-thirds of the space, and will rot out the hive and otherwise get in bad order. When preparing Protection Hives for winter, a piece of burlap is placed over the top of the frames and then two bottomless corrugated paper boxes, Inner Overcoats, are telescoped down over the brood nest, in between the outer and inner hive walls. This provides the burlap with two thicknesses of the corrugated board on the sides and four thicknesses over the top as insulators. They are removed in the Spring, and it takes not over two minutes to insulate a hive for Winter or remove it in the Spring by this method. There are many dead air space compartments in this paper and between it.

Send for a special circular showing 10 large illustrations. It has been necessary to advance prices, but for the next 60 days we will sell from one to five sample complete hives in a place at $5 each.

## TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612.
2½-lb. Friction-Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5 lb. Friction Top Pails in cases of 12.
5 lb. Friction Top Pails in crates of 100.
5 lb. Friction Top Pails in crates of 203.
10 lb. Friction Top Pails in cases of 6.
10 lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60-pound Cans, giving quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

## "falcon"

### THINGS THAT ARE NECESSARY FOR YOUR APIARY

1. There must be a good location for the apiary.
2. Queens must be healthy and vigorous to put life into the hives. (Our queens are the best to be had and at reasonable prices.)
3. Your bees cannot do the work they should if you do not give them the best with which to work. If they have ample storage space, if they can work all the time without slack motion, they will be more contented and swarmless. To accomplish this, you must give them ample storage space, that is, the **RIGHT HIVES AND SUPPLIES. "falcon"**

Beekeepers should be placing their orders early for their early needs. He who waits is apt to suffer. These late beekeepers who want their goods in such a hurry at the last minute will lose some of the honey crop by not furnishing their bees with ample storing space. Railroad embargoes and rush business make deliveries slow.

Our famous **"falcon"** supplies will please you. Do not wait. Order now and strike while the iron is hot. **"falcon"** means the best, the standard of perfection. Red Catalog and Simplified Beekeeping upon request. Dealers everywhere.

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Good Beehives Come From**

# HONEY WANTED

We are in the market at all times for unlimited quantities of Honey, both comb and extracted. Before selling your crop let us hear from you, quoting your lowest price, either f. o. b. your station or delivered Cincinnati. If extracted, mail sample and state how it is put up. If comb honey, state grade and how packed.

**C. H. W. Weber & Company**

**CINCINNATI, OHIO**

# TENNESSEE-BRED QUEENS

**46 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**Capacity of yard, 5000 queens a year**

**Select queen tested for breeding, $5**

**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

# We Offer

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**

**Glen Cove .. New York**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**

**1424 Market Street, Denver, Colo.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# REAL BEE EQUIPMENT

YOU are one of those careful beekeepers who is already figuring on bee supplies for your next year's use so as to avoid the freight congestion later, and also so as to take advantage of any early discounts.

We are in a position to co-operate with you by making *Prompt Shipment* and at *Prices that will Save You Money.*

More than that, you will want the best that you can get for the money. *Real Equipment,* such as we can send you, will not only save you money, but will be a pleasure to use.

## Hives and Supplies

THERE is a big advantage in first-class equipment, something that when put up will stand hauling to your outyards; that will stand the weather when properly painted; in which frames will fit perfectly, and where all hives, supers, etc., are uniform.

If you want to exchange a frame of brood it is a calamity to find that frames will not interchange on account of faulty workmanship.

If you want to move a colony a knot-hole in the bottom-board increases your trouble.

LEWIS HIVES, Supers and Equipment, which we handle, are "Built Like Furniture," with every piece interchangeable.

## Bee Comb Foundation

WE are Comb Foundation Specialists. DADANT'S FOUNDATION is perfected in manufacture to a degree that we feel justified in recommending to you as *the best there is.* In these days of high honey prices, the foundation which is quickest accepted by the bees means extra honey for the beekeeper. Do not lose sight of this point.

## Specialties

TIME SAVERS are money savers. Such items listed in our catalog as Wiring Devices, Electric Wire Imbedders, Swarm Box, Foundation Cutting Box, etc., will save you time—will save you money.

## Bee Books

THIRTY YEARS' experience with several hundred colonies of bees has led us to believe that we can furnish valuable information to the beekeeper. Our books are written with that in view. Some of the books of our own publication are, *'First Lessons in Beekeeping," "A Thousand Answers to Beekeeping Questions," "Practical Queen-Rearing" and "Langstroth on the Honey Bee."*

*Write us for a list of the supplies you wish—We will give you the very lowest prices consistent with first-class goods.*

# DADANT & SONS, Hamilton, Illinois

# MR. BEEKEEPER:

## YOU CAN HELP WIN THE WAR

BY

**ORDERING YOUR BEE SUPPLIES NOW**

BY

**Ordering Standard Goods, so as to enable manufacturing plants to increase production**

BY

**Wintering your Bees with careful attention to their comfort and safety**

Get busy, now, and make up a list of your requirements. A big discount is offered for early orders. Take advantage of prevailing transportation conditions --- later on it may be more difficult to secure prompt shipment. Remember, every pound of Honey produced will release its equivalent of Butter or Sugar for other purposes of food.

**INCREASE YOUR HONEY PRODUCTION**

**THE ITALIANS ARE OUR ALLIES**

**G. B. LEWIS COMPANY**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS USA
MAKES THE FINEST

**Watertown, Wisconsin**

**ORDER FROM YOUR NEAREST DISTRIBUTOR**

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 10 HAMILTON, ILL., OCTOBER, 1918 MONTHLY, $1.00 A YEAR

# NOTES ON ASTERS AS SOURCES OF NECTAR

## Items of Interest About a Widely Distributed Family of Late Blooming Plants of Great Value to the Beekeeper

BY FRANK C. PELLETT

THE aster family is very widely distributed, being common in Europe, Asia and South Africa, as well as America. There are more than 200 recognized species, of which at least 125 are found in the United States. They are extremely common in the eastern and southern States, although some kinds are to be found in every State in the union, and from Canada to Mexico. Every American beekeeper may be sure that his bees are within reach of at least one species of aster, and, in most localities, there are several species. Some species produce nectar much more abundantly than others, and it is probable that the flow from all kinds is more or less affected by soil or climatic conditions. So few beekeepers differentiate between the species that it is very difficult to secure satisfactory information regarding their comparative value.

Asters are very seldom mentioned as sources of nectar in the southwest. Yet twenty-one species are listed as occurring in New Mexico. They seem to be of importance principally in the eastern States. There are numerous reports of honey from asters in the southeastern States of Georgia, Alabama and Mississippi, the amount of surplus increasing northward.

In most localities, the aster honey is mixed with that from goldenrod, and the two sources are usually spoken of together. In the September, 1917, issue of the American Bee Journal, appeared an extended article on goldenrods. Like the asters, they are of wide distribution, and, like them, they seem to produce nectar more abundantly in the moist climate of the eastern States. Both bloom late in autumn, the crop often being cut short by frost.

According to Lovell, the asters are never common enough to yield a surplus in Maine, and the honey is always mixed with goldenrod.

As to the quality of the honey, there are many conflicting reports. Many reports are to the effect that the quality is poor and not suitable for table use. The fact that the honey is seldom unmixed with that of other fall flowers, may be responsible for this impression. C. P. Dadant had one year, in Illinois, a crop of about six barrels which was almost pure aster honey. This honey was secured late in the season, after other plants had ceased to yield, and was almost white and of very fine quality..

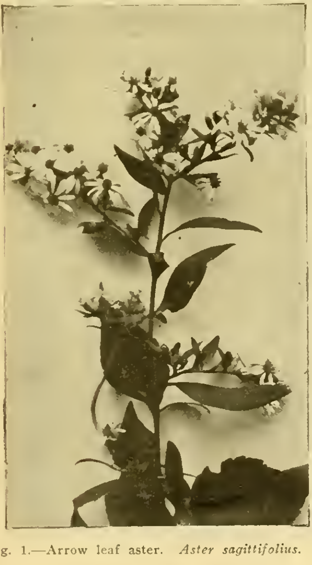


Fig. 1.—Arrow leaf aster. *Aster sagittifolius.*

There are numerous reports that a strong odor is apparent in the apiary when asters are yielding. We quote some of these:

> "We had a fall flow from wild asters that filled the hives with honey for wintering and gave a few gallons of extracted honey. The honey is of good color and weight, but rather strong for table use. It also granulates very quickly. When the bees are gathering this honey the hives give off a rank and somewhat sickening odor, which can be detected for quite a distance away. * * * This odor disappears as the honey ripens and the flow ceases, but the strong taste never entirely disappears. It is as strong as basswood and not nearly so pleasant."

D. E. Andrews, Bloomington, Ind., page 98, American Bee Journal, 1907.

> "The odor is not unpleasant, but is very noticeable when the bees are bringing much of it in, and it can be distinguished a considerable distance from the hives. The amount of 'smell' is such a good criterion as to the amount of honey that one can tell the quantity he is getting from these indications alone."

W. H. Reed, Herrodsburg, Ky. Page 228, Gleanings, 1911.

> "In the Shenandoah valley in Virginia, where I lived for fourteen years, there were many

acres of white aster. There were several years when the bloom was in sheets, affording a good yield of surplus. The honey was very light amber, of fine quality and was considered next to white clover. At such times a strong odor, which was distinctly sour, could be noticed."

Burdett Hassett. Page 257, Gleanings, 1911.

Much has been written concerning the danger of aster honey for winter stores. So many reports of disastrous results from wintering on aster honey have been published, that it is generally understood not to be safe for winter stores. However, it is probable that the trouble comes from honey gathered too late to be properly ripened, rather than because the honey is of poor quality. The fact that the honey granulates readily also probably accounts for the trouble in some cases.

In some localities, asters seem to be a dependable source of surplus, while in others they yield in appreciable quantity only in rare seasons. Kentucky seems to be in the heart of the territory where asters are important. The following are typical reports:

"We have never failed to get a good crop of surplus honey, and plenty left for the bees, from aster for more than twenty years, till this year."

H. C. Clemons, Boyd, Ky. Page 90, Gleanings, 1909.

"In this section the asters are invaluable as fall forage for bees. Let the season be cold or hot, we are certain to have a continuous bloom from early in September until a really hard frost occurs. My Italian bees have never failed to secure enough honey from asters to carry them through the winter, even when there was hardly a pound of honey in the hives at the end of August.

Daniel M. Worthington, Elkridge, Md. American Bee Journal, page 125, 1869.)

"Blue aster, **aster azureus,** known among farmers as blue devil or stickweed, in my judgment is one of the best we have, from the fact that it produces honey in the fall of the year. It is usually in full bloom until about the middle of October, and if the weather is warm enough for the bees to fly they get plenty of honey to winter on from this flower."

West Virginia. Page 869, American Bee Journal, 1906.

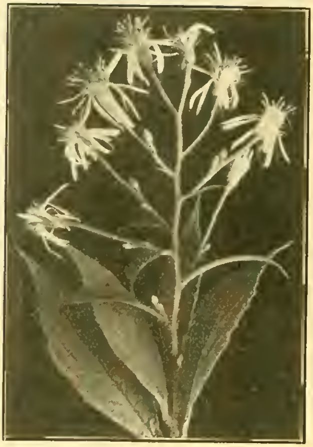


Fig. 4 Swamp aster. *Aster acuminatus.* (Photo by Lovell.)

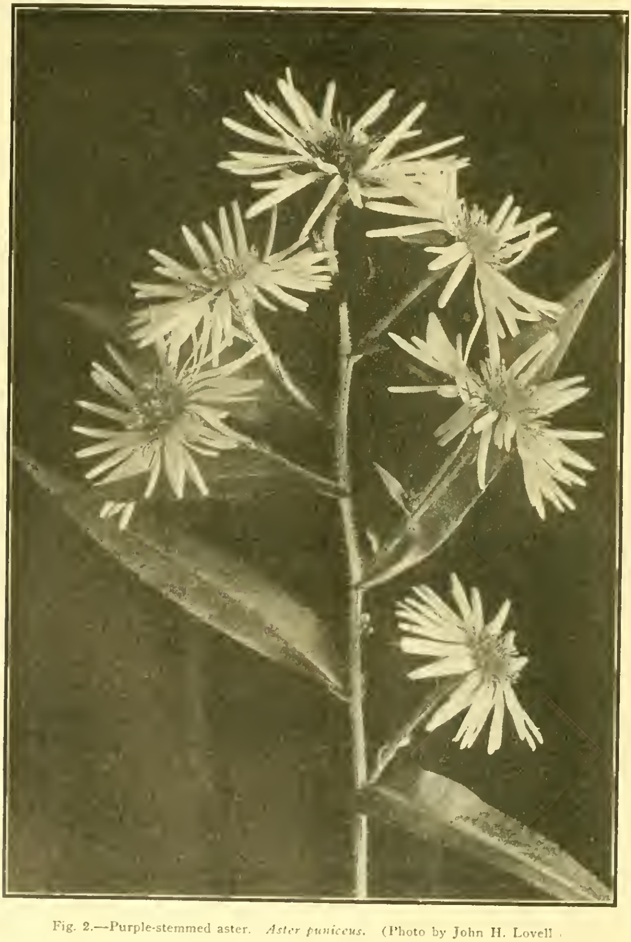


Fig. 2.—Purple-stemmed aster. *Aster puniceus.* (Photo by John H. Lovell.)

It is probable that most of the species are of more or less value for honey under favorable conditions. The writer has seen bees working on arrow-leaf aster, **aster sagittifolius,** on sunny days in Cass County, Iowa, the first week in November, after everything else had been killed by frost. Figure 1 shows this species, which occurs in dry, open woods, from New Brunswick to Ontario, and west to Dakota, and from New York to the Ohio valley, and along the mountains to Georgia and Alabama.

Generally speaking, the small-flowered species with willow-shaped leaves, are best for honey. **Aster Tradescanti** is probably first in the list as a source of surplus. It is found from Ontario to Saskatchewan, and throughout the States east of the Mississippi, south to the gulf States. **Aster salicifolius** is probably one of the best in Iowa and Illinois, being common on low ground.

In a private letter, F. W. L. Sladen writes concerning the asters in Canada, as follows:

"I have this year had confirmation that **Aster cordifolius** is a useful source of surplus honey in favorable seasons in the Gatineau valley in September. During a period of very fine weather between September 11 and 22, a crop of 12,000 pounds of honey, principally from this source, and from the late flowering species of goldenrod, was obtained by Joseph Martineau at Montcerf,

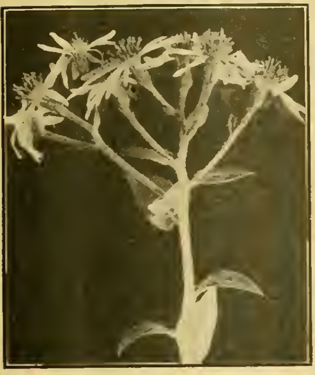


Fig. 5.—Large-leaved aster. *Aster macrophyllus.* (Photo by Lovell.)

Quebec, from 300 colonies. The honey was light amber color, and a pleasant flavor, and not unwholesome for wintering, not granulating in the combs. (See experimental Farms report 1914-15, page 996). Other valuable species of aster in Canada for honey production are **A. lateriflorus** (Maritime provinces to Ontario): **Aster umbellatus** (Maritime provinces to Eastern Manitoba), and **Aster puniceus,** Fig. 2 (Maritime provinces to Ontario.)" Ottawa, October 2, 1917.

**Aster puniceus,** the purple-stemmed aster, Fig. 2, is found from Nova Scotia to the Rocky Mountains and south to Northern Alabama. It is one of the most attractive of the asters, growing on wet land and in the borders of swamps. Lovell writes that in Maine he has seen the bees on this species in large numbers on September 17.

The white field aster or frost flower, **Aster vimineus,** Fig. 3, is common from Eastern Canada to Minnesota, and south to Arkansas and Florida. It grows in dry, open fields, along roadsides, and in waste places. It is a late bloomer, belonging to the group of field asters which are important for nectar. Some other species, however, yield more freely.

The swamp aster, **Aster acuminatus,** occurs on wet land, but as far as available information goes is not valuable for honey.

The large-leaved **Aster macrophyllus,** Fig. 5, is a northern species, found in open woodlands. Graenicher observed ninety-five species of insects on the flowers of this species in Wisconsin, which indicates nectar in abundance in that State.

Several other species are known to produce nectar freely, **A. multiflorus, A. lateriflorus, A. dumosus, A. paniculatus** and **A. vimineus** being reported from various localities. **A. ericoides** is reported as valuable in Missouri:

> "There is an abundance of **Aster ericoides** now in full bloom. The bees are working on it more vigorously than they have on white clover or any other bloom."

George E Wilkins, Wright County, Mo. Page 699, American Bee Journal, 1904.

So far we have been unable to find any records of surplus honey from asters west of the Missouri river.

---

## Wintering Experience

By A. Coppin

LAST fall I had 160 colonies in 8-frame single-walled hives. I commenced packing them for winter in good time, putting them in clamps of either six or twelve hives.

My bees were in rows, one facing east and the other west, with about 4 feet of space between the rows, which gave me ample room to work with them.

When I got ready to pack them for the winter I moved each row back almost 2 feet, thus leaving them almost back to back, or, in other words, just enough space between the two rows to put in packing.

I then filled this space in with forest leaves and straw and covered them all in with the exception of the fronts, which were not protected.

I got 153 of the 160 packed before the big snow came, thus leaving 7 that were not packed, and as the snow staid with us practically all winter, these 7 were never taken care of.

Six of those 7 were in one-story hives, and the odd one was a two-story hive.

The result was as follows: The 6 in the one-story hives were dead this spring, while the two-story was alive.

From the 153 that were packed I lost 24, thus leaving 129 from what were packed, and one from what wasn't packed.

I talked with two other parties that have bees; one of these had 10 hives packed in one clump and reports them all alive.

The other party had 26 hives and did not pack them at all, and reports 20 dead.

While we had an unusually hard winter, I yet believe that it is better to either pack your bees or put them in a cellar.

Wenona, Ill.

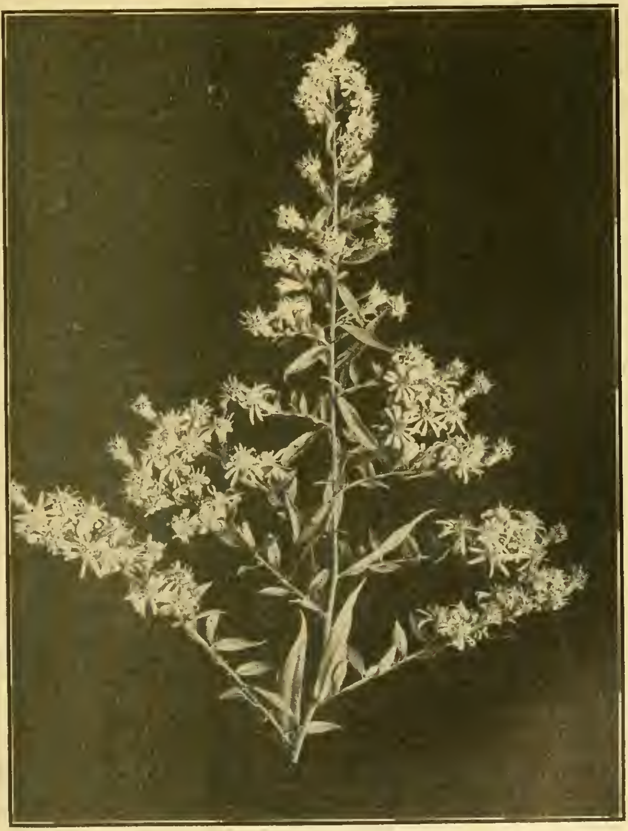


Fig. 3.—White field aster. *Aster vimineus.* (Photo by Lovell.)

AMERICAN BEE JOURNAL
Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

C. P. Dadant . . . . Editor
Frank C. Pellett . . . Associate Editor
Maurice G. Dadant . . . Business Manager

(Copyright 1918, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

## The Editorial Staff

Mr. Frank C. Pellett, who for the past two years, beginning March, 1916, has been staff correspondent of the Journal, is now with us in a more permanent capacity. He is our associate in the editing of the Journal. Mr. Pellett has been met by many of our readers, for he has attended numerous meetings of beekeepers. For those who have never met him, we will say that he has been State Inspector of Apiaries in Iowa, President of the State Association, Vice President of the National Association, author of "Productive Beekeeping," one of the leading modern bee-books, "Practical Queen Rearing," and of "Our Backdoor Neighbors," a delightful book of Nature study.

It is unnecessary to say more. Judge him by what he will do. We expect him to "make good" in his present position.

He is now settled with his family at Hamilton and his permanent address is at this office.

## Beeswax Production

In another column our readers will find an account of experiments by Mr. D. A. Davis, at the University of Minnesota on the above subject. These experiments are interesting, but they still leave the matter of cost of wax in the indefinite condition we have always known. From the time of Martin John (Fribourg 1684) the man who is said to have first discovered that wax is a product of digestion, like milk, hundreds of experimenters have attempted to get at the actual cost of wax to the bees, in honey. The results have varied greatly, not only because of difference in food, warmth, condition of the bees and inaccuracies in the experiments, but also probably because the amount of wax produced naturally by bees from a given quantity of food is as variable as the production of milk or of butter fat in animals.

But what is most important for our producers to know is the answer to the following question:

At what time of the honey crop is it most profitable to give the bees full combs or full sheets of comb foundation?

Some will reply without hesitancy: "At any time." But is not this wrong? W. Z. Hutchinson, a man who made his mark, as editor of the "Beekeepers' Review" and as author of "Advanced Bee Culture," testified to the fact that "in hiving swarms upon drawn combs, the loss was always so great that it seems like folly to repeat it." What explanation can we give for that experience?

That the building of combs by the bees is very expensive to them does not admit of a doubt. Those who have placed it at a low figure have always overlooked some factor which would have added greatly to the cost. But in the experience of Hutchinson, it is probable that the empty combs provided to the bees of a swarm at the height of the honey crop were filled with honey so quickly that the queen was actually deprived of breeding room, while in the delay caused by comb-building the queen would have had time to fill them with brood as fast as they were built.

This subject, mentioned by us in paragraph 425 of the Langstroth-Dadant "Hive and Honey Bee," brought us the following judicious remarks from Mr. Oscar Ritland, of Elroy, Wisconsin:

"I should like to make a suggestion in regard to your excellent book, Langstroth Revised. In paragraph 425 you mention what Mr. Hutchinson says about hiving swarms upon drawn combs, but you have failed to say that he was talking about comb honey. This, in my opinion, explains why he found it to be a loss to hive a swarm on drawn combs.

"If you hive a strong swarm, in a good flow, in a hive full of drawn combs and give it one or two supers of sections with foundation at the same time, I suppose that in most cases the bees will jam the brood chamber full of honey before the queen can get a start, and the result would be as Mr. Hutchinson stated. But if you hive a swarm, in a good honey flow, on a hive full of drawn combs and give them also one or two supers full of drawn combs, you would not expect that the bees would crowd the queen so that the swarm would decline in strength, would you?"

It seems to us that this suggestion solves the matter, but it is advisable for each beekeeper to understand fully the possible advantages and disadvantages of comb supply. There are times when the hiving of swarms upon full combs gives the bees opportunity to breed promptly, in the early part of the season, if the crop does not come in too fast, and perhaps double their capacity for increase before the end of the crop. There are also times, near the end of a crop, when the supplying of empty combs or comb foundation may be the saving of the swarm, since a scanty supply of harvest might be entirely inadequate for the building of the combs but would prove ample to sustain the colony till the next harvest.

These are questions for our college men to experiment upon. Practical apiarists who have neither the time nor the facilities for experimenting and keeping data will be glad of more tests, at different times, carefully recorded. But perhaps honey would give us a more correct result than sugar syrup, which was the food employed by Huber, Dumas and Milne-Edwards, by Professor Cook and dozens of others. Strange to say, sugar gave a greater percentage of wax than honey.

Gundelach, Berlepsch and others were also convinced by their tests that more wax could be produced from a given amount of food when pollen was available than when it was not to be had. This is not because of the use of pollen in the actual production of wax, but because pollen appears necessary to sustain the bees during wax production.

Now that most of our colleges have experimental departments and practical apiarists, we should, before long, have some very useful information on the most profitable use of already-built combs and comb foundation. Will Mr. Davis and others make further experiments on the lines we indicate?

### The Sugar Situation

There are many localities where the bees will not have sufficient honey for winter without feeding. Fortunately, the Food Administration has seen fit to provide for this emergency by making provision to supply the needs of the beekeepers. By the time this issue reaches our readers bees should be prepared for winter in northern localities, although it will not be too late to feed needy colonies.

Beekeepers who have harvested a crop of honey should in no case apply for sugar to feed the bees. The fact that beekeepers who have honey for sale find it necessary to buy sugar will certainly tend to throw suspicion on the craft. The publicity that has necessarily come in connection with the provision for supplying beekeepers with sugar to save their bees, has already created a suspicion in many minds that bees are fed with sugar for the purpose of making honey for sale. American beekeepers as a class are patriotic and are prepared to make any necessary sacrifice to win the war. It is reported, however, that a few individuals who have harvested a crop are disposed to take advantage of the general situation and extract all their honey for sale and feed the bees with sugar for winter. Such action would be very unfortunate, for it might result in the supply of sugar, necessary to feed needy colonies, being withdrawn by the Food Administration on a misimpression. It might also result in the prosecution of the guilty beekeeper, for the public is in no mood now, when every nerve is being strained to win the war, to trifle with those who turn national necessity to private profit.

The Government has met every reasonable demand of the beekeepers and it is important for the good of the industry that every violation of the rules be reported.

### Sugar Versus Honey

We are informed that the Food Administration is allowing 100% of needed sugar for feeding bees that may be short for winter and 50% per cent of normal supply for "honey manufacture." Inasmuch as the adulteration of food is strictly prohibited, we can see no earthly reason for allowing any sugar for artificially manufacturing a product which cannot under any excuse be called honey, even if it contains 50% of real honey. There is evidently a misapprehension on the part of the Food Administration as to what constitutes honey.

Several of our beekeepers have written us that they find great opposition among consumers to the permitting of sugar being used in any quantity whatever to feed bees. Evidently the public is unable to discriminate between bee feeding and honey adulteration. We are writing this article for the purpose of helping the beekeepers in making the matter clear to the consumer.

Pure honey is the product of flowers only. When the flowers are wanting, or when they constain no nectar, owing to drought, excessive moisture, etc., the bees are sometimes unable to secure enough honey to carry them over winter. At least 25 pounds of honey is necessary for the purpose. Neither molasses, nor commercial glucose, nor corn syrup, can be used, as they are either rejected by the bees or, if used by them, make them sick and bring about the death of the colony. Pure cane sugar, diluted with half of its weight of water is the only possible substitute for honey. So when the bees are short of stores, as they are in many places during the present season, sugar syrup is indispensable to keep them alive.

Do beekeepers feed bees sugar to make honey? They do not, for two reasons. The first is that sugar syrup fed to the bees is still sugar syrup. Its chemical condition is not changed and it lacks the flavor, the essential oils which the flowers alone can give. A man feeding his bees sugar syrup and trying to sell it as honey would be liable to arrest for adulteration.

The second reason why sugar is not fed to bees for profit is that when it is used in large quantities as bee feed, there is a large consumption of it by the bees to build comb and to rear brood. This is highly unprofitable. Experiments conducted at different times, for a century past, one of which is published in the current number of the American Bee Journal, show that if the bees use any sugar syrup for this purpose, it costs them from 16 to 25 pounds of sugar for every pound of comb secured. Feeding to keep bees from starving allows them only to fill the combs already built and the feeding does not last long enough to induce them to breed to any extent or to build additional combs. But a plentiful feeding, such as would be necessary to secure a surplus, would induce them to rear brood and to build additional combs, seal the cells, etc. This would more than balance the difference in price.

It is, therefore, neither profitable, nor honest, nor safe, to feed bees in order to get honey for sale. The adulterer has a shorter method of mixing honey and syrup without the help of the bees. This is forbidden by law. No food product may be sold under any but its real name.

### California and the Western Honey Bee.

We read in the "Western Honey Bee" that, according to Mr. Geo. S. Demuth, of the Washington Bureau of Entomology, California has now about two million colonies of bees, producing about a thousand carloads of honey annually. The beekeepers of California who have been having hard sailing in years past, when honey sold, at times, as low as 3 cents per pound, ought to have smooth sailing for some time to come.

And, by the way, we should urge the California honey producer to read the "Western Honey Bee." It is a neat little magazine, well managed and interesting. J. D. Bixby, its editor, will make a valuable paper of it, and he is not paying us for saying that, either.

### New Bulletins on Wintering

Two new bulletins are just now issued by the U. S. Department of Agriculture, Farmers' Bulletin 1012, "The Preparation of Bees for Outdoor Wintering and," and 1014, "Wintering Bees in Cellars." Write the Secretary of Agriculture at Washington for either of these bulletins.

# THE TEXAS QUEEN AND PACKAGE BUSINESS

## The Fourth Article of a Series Dealing With Beekeeping Conditions in the Lone Star State

IN order to appreciate the problems of the queen breeders who supply early orders for bees and queens, one must know something of the vagaries of the Texas climate. While there are sections of Texas that are hilly or mountainous, and also sections covered with forest, for the most part the State is a monotonous level stretch of prairie. Prairie countries are very sensitive to changes in weather conditions, and Texas is no exception to this rule. The southern part of the State is covered with a sparse growth of low-growing, thorny shrubs and small trees, which break the force of the wind to some extent, but which give scant protection as compared to the dense forests of other regions.

The climate is generally mild, on account of the southern situation, but the wind sweeping down across the plains carries the cold and chill of the "northers" clear across the State to the Mexican border. In winter and early spring, a warm and balmy day will often be followed by a "norther" and a raw wind, that chills one to the bone. As in other sections, the weather of spring varies greatly from year to year. In some seasons, bees breed up early and with no apparent setback. In other seasons, "northers" are of such frequent occurrence that the beekeeper finds it difficult to get his colonies in shape for early queen-breeding. The farther south one goes, the more favorable the conditions become, until in the lower Rio Grande valley we find, perhaps, the most favorable conditions for queen-breeding in the United States. Even here the influence of the "norther" is felt, although it seldom brings frost.

In traveling from Dallas to Brownsville, even though one is all the time in Texas, he traverses a greater distance than in traveling from Chicago, Ill., to Nashville, Tenn. One finds it hard to describe Texas conditions generally, because of the great variation in the different sections. This variation was touched upon in detail in the June issue.

The southern breeder has a great advantage over the man farther north, because of his longer season. It is the early orders that bring the higher prices, and which are filled at the best profit. As the season advances, prices tend to drop, until in the late summer there is little margin to the queen-breeder at the prices at which the queens are sold. The man who is prepared to fill orders in April and May finds an unlimited market at profitable prices, for either queens or bees in packages. Although the writer has visited a number of the larger shippers in Alabama, Georgia, Mississippi and Texas, nowhere has he found one who does not experience great difficulty in getting his bees up to the required strength to meet this early trade, except in the lower Rio Grande Valley.

Callallen, Texas, is farther south than any portion of any other State except a part of Florida. The northern beekeeper would expect to find no winter problem there. Yet E. B. Ault, who is extensively engaged in shipping bees and queens, is experimenting with various kinds of winter protection in order to get his bees into prime condition as early in spring as possible. The writer was informed that the bees build up without extra protection in plenty of time for the honey-flow, but too slowly for best results in queen-rearing. Two pictures are shown herewith, illustrating Mr. Ault's methods of wintering. In one picture a row of hives is protected with a bank of dirt thrown up about the hives, and held in place with boards. The entrances are open in the same way as in the usual packing cases used in the north. This plan would not be advisable in a locality where rains are frequent, as the dirt would soon become saturated. The tar paper cases shown in the other picture apparently give as good results, and are much more easily and quickly prepared. The hive is not so easily opened with this case. The protected colonies build up about two weeks earlier than the unprotected ones, in spring, and save some honey in wintering. At first glance, we find here a strong argument for protection to all bees, even in this far southern climate. However, the beekeepers say otherwise, contending that the bees build up in time for the honey-flows anyway, and if they reach maximum strength two weeks early they will have the swarming fever and consume more stores in excessive brood-rearing, than will be saved in wintering.

At Sabinal, W. E. Edwards has twenty colonies in double-walled hives. He inclines to the belief that the extra protection with him is a decided advantage, and says that if it were not for the extra cost he would have all his bees in double-walled hives.

Whatever may be the case for honey production, there can be no question that anything the queen-breeder can do to hasten the early brood-rearing and save bees in spring, is decidedly to his advantage. The two weeks which Mr. Ault has been able to gain in building up is of great value at that early season, and enables him to supply numerous orders which would be otherwise impossible.

In some parts of North Central Texas, the first important surplus flow comes from cotton, about the 20th of June. In these localities, the control of swarming is a problem, since the swarming season comes in April, nearly two months ahead of the honeyflow. Wherever there are

T. W. Bur[illegible] his bees in packages in advance of the honeyflow

Ault's spring protection for cell-building colonies in South Texas.

dependable flows, the production of honey is usually considered more profitable than either queen-breeding or the package business. Some of the most extensive queen-breeders in America would be producing honey, if the honeyflows in the places where they live were heavy and dependable enough to give profitable crops. In this North Texas country the early package business offers a solution of the swarming problem. If the bees are allowed to continue excess breeding for two months ahead of the honeyflow, large quantities of honey are consumed in rearing useless brood, and much manipulation is necessary on the part of the beekeeper to control the swarms. T. W. Burleson, of Waxahachie, is a large honey producer, having 750 colonies of bees. He has found that by selling bees to the early trade he can turn his excess bees to profit early in the season, and still give the bees plenty of time to build up for the honeyflow from cotton.

There are not many localities where the selling of bees and the production of honey can be combined to as good advantage. Where it can be done, it furnishes the ideal condition for profitable beekeeping. The bees are sold in early spring, at the time when prices rule highest, and the marketing of the honey crop, which comes on later, gives the beekeeper a long season with a dependable income. Mr. Burleson is of the opinion that one of the secrets of success, in shipping bees, is to gorge them before delivering the package to the express company. If given all the syrup which they will take, in advance of shipment, the bees cluster much more quietly and go through in better condition. A common way of feeding is to spread the syrup over the screen of the cage with a wide brush.

There are numerous queen-breeders in Texas, and each locality presents conditions peculiar to itself. The writer was not able to visit as many of the queen yards as he wished, because the time available for the trip was not sufficient. In some important honey-producing sections of Texas, commercial queen-rearing is not profitable because of a shortage of pollen at some seasons of the year. This and other locality peculiarities will be considered further in later articles.

---

## Co-Operation Brought Higher Prices

By Chilton Gano

BEEKEEPERS of the Northwest — Idaho and Oregon — have proved that successful co-operative selling of honey need not be confined to Colorado and Texas. The story of the Idaho-Oregon Honey Producers' Association has been one of financial success from the first season, 1915. To indicate at the start the scope of this success it may be stated that in 1914 Northwestern extracted honey was selling as low as 5 cents, whereas this season the association's minimum price is 18 cents. This advance cannot, of course, be attributed entirely to the association. Advances in production cost due to the war, and the scarcity of sugar have had much to do with it. But an account of the association's history will show that the present prosperity of the Northwest beekeepers is due in part to organization.

The present organization is an outgrowth of the Southern Idaho-Eastern Oregon Beekeepers' Association, which was a social organization. Prior to 1914 members of the organization had from time to time bunched supply orders, or occasionally combined to make up a car of honey for shipment to the coast; but such actions were not included in the association's functions.

In December, 1914, the time seemed ripe for adopting a definite plan for co-operative buying of supplies and selling of honey. A meeting was held and the result was the incorporation of the Idaho-Oregon Honey Producers' Association. The association was to buy supplies of all kinds, bunching all members' orders, and to market all the honey of its members, withholding 5 per cent of gross sales to cover expenses and returning any surplus from this amount to the producers at the end of each season. Prices were to be determined by public discussion at the Annual Field Meeting, held in July of each year, a schedule being determined on for the three grades of comb honey. Producers of extracted, however, were to be allowed to set their own prices. The association was to endeavor to secure the schedule prices, but was empowered to sell at market price whenever it appeared advisable.

### Big Savings in Supplies

First, as regards purchasing of

Hives protected with earth in Ault's yards. This would not do in a wet climate.

supplies, the contract signed by the members accords, among other privileges, that of buying supplies through the Association and deferring payment until crops are sold in the fall of the same season.

This is quite an advantage, in itself, but the actual saving through quantity buying has been great. Before the organization of the association, producers purchased from Pacific Coast and Colorado dealers, paying retail catalog prices and local freight to destination. The association, through assembling of orders, is now able to buy at jobbers' list, and goods are shipped in car lots, taking a reduced freight rate. As some of the individual orders of members runs as high as $1,000, it can be realized what jobbers' list prices, ranging from 20 to 33 1-3 per cent below retail, means in money saving.

### Higher Prices

Before the new plan was adopted extracted honey was selling as low as 5 cents in the Northwest, while comb sold as low as $2.25 per case. This was, partly at least, because competition between producers forced the price down. Elimination of this competition between members resulted in the association securing for the entire crop in 1915, the first season, $2.75 per case for No. 1, and $2.50 for No. 2; whereas, individual producers in the district sold as low as $2.50 and $2.25. One large individual producer succeeded in getting $2.65 and $2.40. In the same season a producer of extracted carried over a full car, which he was unable to move. In the spring of 1916 he commissioned the association to sell it for him and they did so within one week, securing one-quarter cent per pound higher than the price he had set.

In the meantime the association's work for improving production and pack was progressing, and in 1917 a new grade of comb honey, "Fancy," was added. In that season cars were sold as high as $3.50, $3.25 and $3 for the three grades—fancy, No. 1 and No. 2. Others sold at $3.25, $3 and $2.75. Individual producers sold at around $3,—$2.75 for two grades.

One coast buyer bought a car from the association in July at $3.15, $2.75 net, f. o. b. Caldwell, Idaho, and the following month paid an individual producer $3 and $2.60, besides charging him 10 cents per case brokerage for selling to themselves.

In the same season extracted was sold, first cars, at 12½ cents, thence on up to 15 cents, by the association. Individuals sold large lots at 10 cents, and some as low as 8 cents. An association member agreed to sell one car through the association at 8 cents, but the association advised holding it, and later got 12½ cents for it.

The present season the price schedule calls for 18 cents for extracted and $4.50-$4.25-$4.00 for comb. These are minimum prices, and the association actually refused $5.00-$4.50 for 10 cars and later got $5.50-$5.00. Since then a deal has been closed at $6.00-$5.50, which will take up the balance of the comb. Individual producers began selling at the association's schedule of $4.50-$4.00, but have asked higher prices since they learned the association was getting them.

Equally fine have been extracted sales. With a minimum of 18 cents, the association actually refused 20 cents for its entire crop, and is now selling in 5-gallon cans at 22½ cents. Individual producers started selling at 18 cents, but in this case, also, have raised their prices.

"If this association had not been in existence this season," says its secretary, P. S. Farrell, "coast jobbers would have made a killing on our honey this season, because only one or two producers were really posted on market conditions." One great secret of the association's success is that, handling so large a crop, it can well afford to investigate the national honey market thoroughly.

### Low Operating Cost

Not the least of this association's financial triumphs is its low operating cost. It withholds only 5 per cent on gross sales, and has never yet needed the entire amount for expenses. In 1915 it operated for only five-thirteenths of its commission, repaying to the producers the remaining eight-thirteenths. In 1916, due to a partial crop failure, expenses were higher, approximating 4 per cent. In 1917 they were 3½ per cent.

The association now has 146 members, located in the Boise and Payette Valleys in Idaho, and in the Malheur River Valley in Oregon. The members are grouped into seven districts, and each district elects a Director to the Board of Directors. There are fifteen loading points from which honey is shipped, but cars of supplies are unloaded at two points—Caldwell, Idaho, and Ontario, Ore., reshipment being made direct to members.

Among the interesting provisions in the membership contract are the following:

1. That members must ship their entire crops through the association for 5 years from date of contract.
2. The selling prices shall be fixed by the directors, following public discussion, and the association shall obtain higher prices when possible.
3. That the association can refuse to accept honey from a member which is not properly graded and packed according to the association's grading rules.
4. That if a member fails to sell through the association, the association can take possession of his crop, and retain for selling it, in addition to the 5 per cent, any additional amount to cover the extra expense of this procedure.
5. That a member who actually sells any honey outside shall pay to the association, in lieu of liquidated damages, 5 per cent of the gross of such sales.

It is, of course, true that the success of such an organization depends largely on the business ability of its officers and secretary, yet that such managers need to be more than ordinarily good business men is not indicated by the records. Such associations have had notable successes right from the start, in at least three States, which indicates that practically any average American community should be able to command the services of a manager and officers of sufficient ability to insure the success of such an undertaking.

## The Production of Wax by Honey Bees

By D. A. Davis

THE subject of Wax Production by the Honey Bee is one upon which theories are numerous. Some of the well-established facts about this subject are:

1. That a new swarm or shaken swarm of bees will make wax and build comb immediately after entering the new box or hive, if this box or hive does not already contain combs.

2. That the wax is secreted by the wax glands, which lie in pairs, usually four pairs, on the ventral interior side of the abdomen of the worker-bee. The wax being secreted oozes out through the minute perforations of the wax plates, which cover the separate wax glands. Upon coming in contact with the air the liquid wax hardens into a pearly white scale. (1) gives a good description of the wax organs and their functions.

"As is well known, wax is produced by the worker-bees only. The location of the wax-secreting surfaces, or wax plates, may be readily determined by an examination of the ventral surface of a bee's abdomen. By stretching the abdomen somewhat it will be seen that each of the last four visible sternal or ventral plates is divided into two regions, a posterior projecting edge which is distinctly hairy, and a smooth anterior half which is usually covered by the next preceding plate. This anterior region is divided by a median ridge into two distinct irregularly oval areas, which thus lie on either side of the mid-ventral line. These areas are the wax plates, and upon them the wax-scales are formed. Each one of the last four sternal plates bears two wax plates, making eight in all. (See Fig. 1.)

"The glands which secrete the wax lie on the floor of the abdomen immediately above and in contact with the wax plates, and their secretion is deposited upon the external surfaces of the plates. Upon coming in contact with the air the fluid wax hardens, forming a covering over the entire outer surface of the plate, which gradually increases in thickness with the addition of wax through the pores. In this way the wax-scales are produced, and since they are molded upon the surfaces of the eight wax plates, they cor-

(1) Casteel Ph. D., D. B. 1912—The Manipulation of the Wax Scales of the Honey Bee.

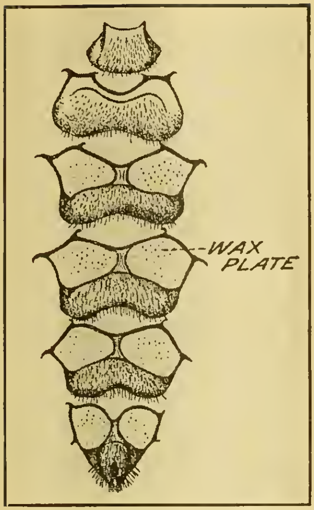


Fig. 1.—Wax plates of the worker bee. (Casteel.)

respond to them in number and in form.

"In its natural position each wax scale lies between its wax plate and the overlapping edge of the next preceding sternal plate. The scale thus fits into a little crevice or wax pocket and is well protected from injury. If the bee extends its abdomen the rear edges of the scales can be seen protruding from their pockets, or if the scales become very thick they will push the covering plates outward and will project from the pockets." (See Fig. 2.)

3. That worker-bees gorge themselves with honey before beginning the process of wax secretion.

4. That worker-bees cluster together in dense masses while secreting wax, evidently to generate sufficient heat for the secretion of the wax and formation of the scales.

The foregoing facts are well known, but there has been much speculation on the amount of honey or sugar that is used up in the metabolic process of wax secretion. Various writers have estimated that all the way from 5 lbs. to 40 lbs. of honey is used in the production of one pound of wax.

The experiments carried on during the past fall have disclosed the following facts:

1. It requires more pounds of sugar for old worker-bees to produce a pound of wax than for worker-bees of average age.

2. Young worker-bees can produce wax more economically than old worker-bees or worker-bees of mixed ages, such as found in the average colony.

3. The average colony, without exceptionally good weather conditions in the way of temperature, will consume on the average 16 pounds 9 ounces of sugar in secreting 1 pound of wax.

4. With beeswax selling at 40 cents per pound, that figure is only one-third the cost of its production. With sugar at 8 cents beeswax should sell at $1.25 per pound or even higher, since honey is the food which is ordinarily used in its production and honey is always higher than sugar in price.

The following is a statement of the experiment and the data obtained, with the resulting tables derived therefrom and used in the final conclusions:

On September 17, 1917, five colonies of bees were shaken upon full sheets of medium brood-comb foundation in hives which did not contain a single drop of honey. The only wax which was present was that amount used in the foundation.

Colonies Nos. 1, 3 and 5 were average colonies with about equal portions of young, old and medium-aged worker-bees.

Colony No. 2 had a very large percentage of young worker-bees, that is, bees which had emerged within the past two weeks.

Colony No. 4 was composed mostly of old worker-bees, bees as old as six weeks or two months, very few young, newly-emerged bees.

Each colony was weighed at the beginning and end of the experiment, as were three other colonies of about the same strength, in the same location, which were not being experimented upon.

A sugar syrup, made of four parts, by weight, of pure granulated sugar and three parts, by weight, of cold water, was prepared and fed regularly, as fast as the bees could take it.

The colonies not fed or disturbed were found to have lost an average of 3 pounds and 3 ounces during the twenty-five days that the experiment was carried on. Since they raised during that time approximately as much brood as did the colonies under test, the figure 3 pounds and 3 ounces of honey was used in computing the amount consumed by the bees and fed to their brood while the test was going on. This amount of honey was reduced to a sugar basis, since honey is only 80 per cent sugar.

After the feeding experiment was over, some of the representative combs were extracted and the combs melted up to find out exactly the amount of wax which had been added to the two-ounce sheets of foundation, as well as to find out the water content of the inverted sugar syrup. The fact that the sugar syrup had been reduced to the same water content as honey in spite of the coolness of the season, was a notable fact. In the wax production it was found that it was necessary for the bees to add an average of one ounce of wax per frame to the two-ounce foundation sheets, in order to build the comb out even with the end bars. However, it is very evident that more and more wax is added to these combs year by year as they are being used.

These figures would vary in the spring or summer when the weather conditions would be ideal for the activities of the bee and the natural building of comb.

### Table No. 1.

Weight after shaking on full sheets of foundation. Weight of bees and hives before feeding:

| | |
|---|---|
| Colony 1 | 33 lbs. 6 oz. |
| Colony 2 | 31 lbs. 13 oz. |
| Colony 3 | 30 lbs. 3 oz. |
| Colony 4 | 24 lbs. |
| Colony 5 | 28 lbs. 1 oz. |

### Table No. 2.

Syrup fed, 4.3 mixture. Therefore, 7 lbs. syrup equals 4 lbs. sugar. Weight of sugar syrup only, which was fed:

| | |
|---|---|
| Colony 1 | 41 lbs. 1 oz. |
| Colony 2 | 41 lbs. 1 oz. |
| Colony 3 | 36 lbs. 8 oz. |
| Colony 4 | 41 lbs. 1 oz. |
| Colony 5 | 41 lbs. 1 oz. |

### Table No. 3.

Final weights of colonies which were fed, at end of period of twenty-five days:

| | |
|---|---|
| Colony 1 | 51 lbs. 10 oz. |
| Colony 2 | 50 lbs. 15 oz. |
| Colony 3 | 45 lbs. 8 oz. |
| Colony 4 | 41 lbs. 9 oz. |

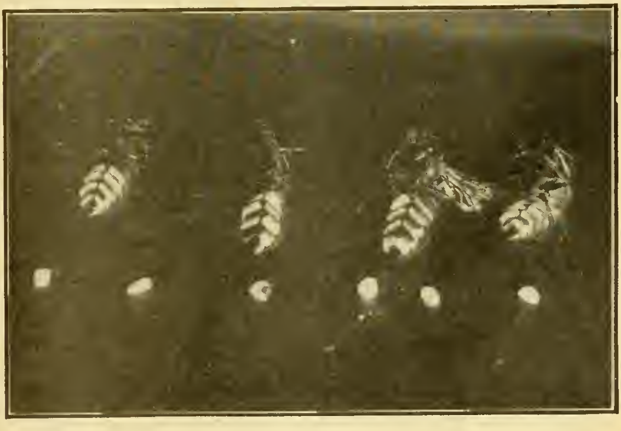


Fig. 2.—Ventral caudal view of abdomen of worker bees, showing wax scales between the wax plates and abdominal segments. Also some scales removed from the bee. (Original.)

| | |
|---|---|
| Colony 5 | 44 lbs 12 oz |

### Table No. 4.

Net gain per colony.

Net weight of evaporated and inverted sugar syrup which was stored during the period:

| | |
|---|---|
| Colony 1 | 18 lbs. 4 oz. |
| Colony 2 | 19 lbs. 2 oz |
| Colony 3 | 15 lbs. 5 oz. |
| Colony 4 | 17 lbs. 9 oz. |
| Colony 5 | 16 lbs. 11 oz |

### Table No. 5

Number of pounds of honey for maintenance added to the gain in weight. That is, net gain plus 3 pounds 3 ounces.

Total weight of stored syrup plus the amount used by the colony during the twenty-five days:

| | |
|---|---|
| Colony 1 | 21 lbs. 7 oz. |
| Colony 2 | 22 lbs. 5 oz. |
| Colony 3 | 18 lbs. 8 oz. |
| Colony 4 | 20 lbs. 12 oz. |
| Colony 5 | 19 lbs 14 oz. |

### Table No. 6.

Number of pounds of dry sugar fed in the form of syrup:

| | |
|---|---|
| Colony 1 | 23 lbs. 7 3-7 oz. |
| Colony 2 | 23 lbs. 7 3-7 oz. |
| Colony 3 | 20 lbs. 14 1-4 oz. |
| Colony 4 | 23 lbs. 7 3-7 oz. |
| Colony 5 | 23 lbs. 7 3-7 oz |

### Table No. 7.

Number of pounds dry sugar equivalent stored in combs and used by colony, considering the difference in consistency of syrup at the time of feeding and after the syrup was stored:

| | |
|---|---|
| Colony 1 | 17 lbs. 5 oz. |
| Colony 2 | 17 lbs. 13 3-5 oz. |
| Colony 3 | 14 lbs. 12 4-5 oz. |
| Colony 4 | 16 lbs. 9 3-5 oz. |
| Colony 5 | 15 lbs. 14 2-5 oz. |

### Table No. 8.

Number of combs built fully out during feeding period from the foundation furnished:

| | |
|---|---|
| Colony 1 | 6 |
| Colony 2 | 7 |
| Colony 3 | 6 |
| Colony 4 | 5½ |
| Colony 5 | 7 |

### Table No. 9.

Number of pounds of sugar required to produce one pound of wax:

| | |
|---|---|
| Colony 1 | 16 lbs. 7 oz. |
| Colony 2 | 12 lbs. 14 oz. |
| Colony 3 | 16 lbs. 4 oz. |
| Colony 4 | 20 lbs. |
| Colony 5 | 17 lbs. 5 oz. |
| Average | 16 lbs. 9 oz. |

From table No. 1 you will notice that the initial weights of the colonies after shaking upon foundation vary greatly. This variation is due to the different sizes of hives, instead of the difference in number of bees.

Ontario, Iowa.

## A Valuable Pest---To Beemen

By C. D. Stuart

"IS the Yellow Star or Russian Thistle a menace to Northern California?"

To decide the question, farmers from Butte, Tehama, Glenn and surrounding counties held a meeting December 2, 1916. The solemnity of the session presaged an affirmative answer, only a single dissenting voice being heard—the humble protest of some beeman, perhaps; but his identity is not revealed by official records of the proceedings.

Declared a pest and a menace, this nectar-secreting plant was condemned to death by fire, by water, by forceful removal from the soil and by burial. But at the end of the meeting in the late afternoon, the thistle still flourished, and to this day is obeying the ancient injunction to increase and multiply its kind, to the secret satisfaction of apiarists.

According to the report, the *Centaurea solstitialis*, or yellow star thistle, was discovered in Northern California about twenty-five years ago, only an occasional bunch growing at that time along a short-cut road through a hay field. About the same date other small plants were imported from Russia. (The report does not say for what purpose, or if they were brought in by accident.) One of the farmers at the meeting said: "It looks something like the saffron we had back east;" but later he concluded that it was "some kind of a weed," and paid no further attention to it.

[illegible]

In a few years the thistle had spread, and it became increasingly difficult to run a mowing machine through the "nail-heads," as one man called them. From the level grain land it spread to the foothills thirty miles away, and still further, the seed being carried by birds, in the wool of sheep and in the winds and rain. The overflowed land suffers the most. The seeds are carried down to it by the rivers, and in these rich soils the thistle often grows to a height of 6 or 8 feet and forms an impenetrable jungle.

The ordinary hoeing method of eradication was reported to be ineffectual, as the "root is a very determined root," and the thistle will adapt itself to the land—that is, lie on the ground like a burr clover and blossom and seed itself there. It can be plowed under periodically until it will finally disappear in highly cultivated fruit orchards, but it still retains its hold in fence corners and along the roadsides. One orchardist reported that he had removed all of his fencing in order to plow the thistle under, but it was only a temporary relief, as it still flourished in untilled fields and rocky foothills; others, that it had no effect on crops, as its growth is now confined to out-of-the-way places. A wool grower discovered that a herd of sheep will stamp out the thistle. They crop it down as fast as the tender shoots appear, so that it is not allowed to become hard and unfit for fodder, or to go to seed.

But all who own farms in Northern California are not wool growers, especially on land that is adapted to nuts and fruit.

And so the fight is on, and like other kinds of warfare, had its inception in money-making projects. A man of large holdings naturally opposes the eradication of thistle through individual effort, because it "would cost more than the land is worth." On the other hand, a man of small, intensively-cultivated holdings would be able to control the pest on his own land were it not for the seeds constantly supplied from the neglected fields of some absentee landlord. But all agree that it is going to be a man's job totally to eradicate the thistle, the large land-owner naturally advocating State appropriations to check its inroads; the small land owner objecting to such paternalism because of the increased taxation to those who are already coping more or less successfully with the situation.

Meanwhile, from one-half to three-fourths of Butte county's honey crop, averaging about 60 tons, is gathered from this pest, now said to be growing on two-thirds of the county's area. Should the thistle continue to spread, in spite of legislative appropriations, in defiance of the State University and of the Horticultural Commission, to say nothing of existing laws, Northern California will be compelled to "eat honey" or starve. There will be little else to eat, if the pro-eradication faction is to be taken seriously.

Star thistle begins to bloom about the first of July and continues till frost, which usually comes between October 1 and November 1. The yield of nectar is slow but continuous; if it is stopped by too long drought, it will start yielding nectar again after a rain. The plant has the faculty of existing in arid soils for long periods of drought, and, when apparently dried up, it will start to grow and blossom after a rain. Some cattle growers find that thistle hay can be fed profitably when cut and dried like other hay, if it is moistened just before feeding. The dampening of the fodder takes the sting out of its leaves and blossoms.

Star thistle honey is heavy-bodied, white, almost as cloying in its sweetness as orange, and has a greenish yellow tinge, like olive oil. It is considered by large buyers equal in quality to any white honey in the State, and with the price at 2 cents a pound more than light amber honey of the alfalfa type, and still rising, beemen in Northern California should worry.

Chico, Calif.

---

## Practical Queen Rearing

A Review by John Anderson, M. A.

MR PELLETT set himself to write a concise manual on the art and practice of queen rearing, and right well has he succeeded. He has done more than he promised in the preface; he has passed the grist through his own mill, has added the distinctive Pellett touch, and in the very limited space at his disposal has clearly indicated the principles underlying the various methods. The book is not therefore a catalogue of directions which must be followed in every detail or not at all. Each one can judge of the methods for himself and select those most suitable to his particular condition.

The illustrations are most helpful and many are of high artistic value. Securing that frontispiece of the queen, drone and worker, must have entailed much patient waiting before the desired grouping was obtained.

There are many little hints and devices which make for greater dexterity, smoothness, and success, in the various processes. When using the Miller method I used to trim up to the eggs according to instruction in a British book, but I rarely succeeded in getting cells on the edges of the comb. The writer of the book had forgotten that bees in a hurry select larvæ and not eggs for queen-making. Dr. Miller gives the necessary hint on page 56. The horse-hair spoon is a cute idea calculated to neutralize much clumsiness on the part of the operator. The grafting house is another valuable suggestion, and a great improvement on the kitchen. If thought advisable, the atmosphere in such a house could readily be given that degree of humidity which Signor Penna thinks so desirable.

Opinions may vary as to some of the theory on which certain practice is based. It is difficult, for example, to believe that food and space during larval life make all the difference between a queen and a worker. If so much royal jelly, and so much cell space, develop in a worker pollen-combs or baskets of a certain size and complexity, one would expect that the larger queen-cell with unlimited royal jelly would produce still better pollen-combs. But the queen has no pollen-combs, no pollen-baskets, no wax glands, a smaller brain, weaker jaws, less perfectly developed eyes! If the queen were uniformly better developed than the worker we might be content with the food and space theory, but it obviously cannot explain such differential development.

The attempt to practically eliminate the drone is perhaps not entirely well advised. Although the drone is unfitted for the more familiar duties discharged by the worker, there are certain ancillary activities, or rather passivities, in which the drone may not be a negligible quantity. At night, when the important duty of ripening the honey is being performed, the burly drones must help considerabl in keeping up the necessary temperature. On moderately cold days, when mating is impossible, but nectar is being gathered, the presence of the drones on the brood may release an equivalent number of workers. Some of us think that bees are more contented, work better, and are less likely to need queen excluders if a moderate quantity of drone-comb be permitted. This drone-comb should be placed at the sides in order that drones may not appear too early.

Mr. Pellett accepts the general view that the first virgin to emerge is accountable for the destruction of any other cells in the hive. This is not invariably the case. One or more cells may be destroyed before any queen is due to emerge; and I have seen every cell destroyed by the workers except the one which afterwards emitted the chosen virgin.

Are cells quite as delicate as some would have us believe, and is the orientation so very important as indicated on page 78? A cell which I carried on a motorcycle for four miles yielded a nice queen just a week later. I have seen naturally built cells horizontally placed, and I have been in the habit of placing cells in nuclei almost horizontally just under the quilt. This ensures their being kept warm, and enables one to see if the queen has emerged without the necessity of disturbing the combs. If cells must always be point downward we shall have to revise our practice.

The analysis of introduction methods is most illuminating, and probably sound, both as to theory and practice. It is a pity that Mr. Pellett did not specifically mention the Simmins method of direct introduction. It is as simple as any, and usually successful. Cheshire was delighted with a method by which he could have a queen laying in half a dozen hives in a week.

It is sometimes difficult to tell without waste of time whether a virgin is actually present in a hive, and it is frequently recommended that one should place in the hive a comb with eggs and young larvæ to see whether cells will be formed. Hewitt is positive that the addition of any but sealed brood will make the bees ball the queen on her return from mating. Dr. Miller seems to be coming around to this view. (July Gleanings.)

The suggestion that queens may convey disease through heredity is most interesting. The experience of Poppleton with paralysis is particularly apt, since Britain is being depleted of bees by a disease something very like what troubled Poppleton. It is frequently stated that the queen is immune from Isle of Wight disease, and it is quite true that she almost invariably survives to the last, and seems not to die of the disease, but from want of attendants. I have in recent years repeatedly introduced such a surviving queen to a fresh stock, and the result has invariably been that sooner or later her offspring developed Isle of Wight disease. Indeed, so far as I am aware, this is the only artificial way of producing the disease.

The library of an intelligent beekeeper cannot be considered complete without a copy of "Practical Queen Rearing."

COLLEGE OF AGRICULTURE,
Aberdeen, Scotland.

(Mr. Anderson maintains the popular sentiment in favor of the usefulness of drones to keep the hive warm. In view of Dr. Brunnich's studies (September American Bee Journal), which show the drone to have a higher temperature than the worker, we might agree to this "ancillary" usefulness, were it not that drones have to be reared previously, often at a time when warmth is at a premium in the brood-combs; were it not also that whenever a return of cool weather decreases the flow of honey the drones are mercilessly destroyed, whether full grown or in the cell; even when they may be needed a few days later. In addition, we must call the attention of Mr. Anderson to the much greater heat of the summer climate of the Mississippi Valley, where the question, during the swarming time, is not "how to keep the hive warm," but how to keep down the excessive heat.

The Simmins direct introduction method and all similar methods are good to introduce queens that are fresh from the hive. But for queens that are fatigued from a long voyage, there is very little success in any method of direct introduction. We have had proof of this in hundreds of cases.—C. P. D.)

---

**The Seventh Annual Meeting of the Iowa Beekeepers' Association** will be held at Des Moines, Ia., on Wednesday and Thursday, November 6 and 7. The Mid-west Horticultural Show occurs the same week. Every beeman should be present. Many prominent beemen, specialists in various lines of bee work, are to be present.

HAMLIN B. MILLER,
Secretary-Treasurer.
Marshalltown, Ia.

# Women and the War

By Mary G. Phillips

WHEN the history of this eventful year is written, there will be many dramatic stories to be told, individual deeds of heroism as well as stirring events involving whole nations, such as the recognition of that strange people without a home, the Czecko-Slavs. But among all the thrilling incidents of the year 1918 there is none which stands out more strikingly as an example of the patriotic spirit of sacrifice than the story of how the American housewife saved the wheat situation—saving lives by her saving food.

In a letter to the President, Mr. Hoover says, concerning the amounts of food stuffs sent by us to our allies: "I am sure that all the millions of our people, agricultural as well as urban, who have contributed to these results should feel a very definite satisfaction that in a year of universal food shortages in the northern hemisphere, all of those people joined together against Germany have come through into sight of the coming harvest not only with health and strength fully maintained, but with only temporary periods of hardship. The European allies have been compelled to sacrifice more than our own people, but we have not failed to load every steamer since the delays of the storm months last winter. Our contributions to this end could not have been accomplished without effort and sacrifice, and it is a matter of further satisfaction that it has been accomplished voluntarily and individually. It is difficult to distinguish between various sections of our people—the homes, public eating places, food trades, urban or agricultural populations—in assessing credit for these results, **but no one will deny the dominant part of the American women.**"

There is a "very definite satisfaction" to be felt, isn't there, if you are one of the American women who has refrained from using that extra spoonful of sugar in your cooking, who has struggled with bread-making with no wheat, and who has racked her brains for meat substitutes. The "temporary periods of hardships" have not really spelled hardship for most of us—inconvenience, perhaps, a little difficulty in preparing meals, small sacrifices at most compared with the sacrifices of our allies, and yet these amazing results have been accomplished.

The civilian populations of our allies were long ago reduced almost to the danger point of privation, and as the months have gone by it has become increasingly evident that any help in their extremity must come from and through America, and so we have been sending food in increasingly large amounts across the ocean to meet the shortage. The food we have exported has gone to supply our own and the allied armies, the civilian population behind the lines, the Belgian relief, and the Red Cross. Last year, our first as a belligerent, it seemed remarkable enough to be able to export such suddenly increased amounts of food as the following: The export of corn was 2.5 times greater than in pre-war years; oatmeal, 22 times greater; rice, 170 times greater; wheat flour, 5 times greater; condensed milk, 747 times greater; refined sugar, 26 times greater. But all these exports were last year, when we had surplus above our needs. This year has been a different story.

Last spring the wheat crop was largely a failure, and the entire surplus of the 1917 crop had already been sent across. At that critical moment the allied food controllers sent an urgent appeal for 75,000,000 more bushels of wheat—the allies could not continue the war without it. Where was it to come from? It had to come from the amount normally consumed by the American people, from our own home loaves. On March 29, 500 hotel men had gathered in Washington to discuss the food situation, and when they learned of this need, they voluntarily took the wheatless pledge. The dining car services followed their example, the propaganda spread, and the country was aroused. Churches, clubs, committees, began to pledge "no wheat until harvest," and as a result, instead of the extra shipment of 75,000,000 bushels asked for, we shipped 85,000,000 bushels of wheat! That is this year's wheat story, and it is regarded by the Food Administration as one of the finest manifestations of patriotic spirit since America entered the war.

What we have done with regard to wheat, we can do with regard to sugar. We are now asked to remember that sugar which is mainly a luxury with us, has become an essential element for the success of the war, therefore we must see to it that our armies have what they need and the allied peoples must not be restricted to the lowest ebb. The only way to secure a fair distribution of the sugar available is to restrict ourselves in its use more than we have, for the situation this year is serious. Not only are the sugar bins in homes, bakeries, factories and stores almost empty, but the crops of sugar beets and sugar cane in the United States have been disappointing. The yield from Porto Rico has likewise been less than was hoped for, and it becomes increasingly difficult to obtain sugar from distant sources, because of the need for ships for other purposes. Then as our army and navy grow by leaps and bounds, they require greater amounts of sugar, and we must also send larger amounts to Italy and France to take the place of all that was lost through the German and Austrian invasions. The Germans not only overran much land devoted to beet culture, but they also destroyed many factories. Finally, over 50,000,000 pounds were lost recently through submarine sinkings off the Atlantic coast.

The situation is so critical that every possible means of conservation should be observed. Again it is the housewife who must take the responsibility.

Beekeepers' wives are especially fortunate if there is always honey in the house, but it is their responsibility then, too, not to buy the two pounds of sugar allotted to each member of the family. With the sugar that you do buy, it is a good plan to portion it, putting the daily allowance for each one in an envelope with his name on. This is a boarding house method, and may be a little trouble, but it insures a fair division. There are 96 level teaspoonfuls of sugar to a pound, so that three level teaspoonfuls daily would make a monthly ration of one pound, which is the Italian allotment at present. Think how much sugar it would mean for export if every American family would voluntarily adopt the Italian ration until January.

If the children get candy hungry,

Apiary of Engineer Capponi, at Uge, Italy, in January, 1918.

here are two recipes that will satisfy that longing for something sweet:

**Hunky Dory**

3 cakes sweet chocolate.
2 tablespoons rich cream.
2 cups popped corn.
1 cup nut meats.

Break the chocolate into small pieces and melt it over hot water. As soon as it is melted add the cream, corn and nuts. Stir quickly with a silver fork and lift out in small lumps. This makes the sweet chocolate go twice as far.

**Parisian Sweets**

Put through the meat chopper one pound of dates, one pound of figs and one pound of nut meats. Add one tablespoon of orange juice, a little grated orange peel and one-fourth cup of honey or syrup. Mould into balls and roll in chopped nuts, cocoanut or chocolate. This mixture may be packed in an oiled tin, put under a weight until firm, then cut in blocks. Melted chocolate may be added to the mixture before moulding if desired. A little of this would take the place of dessert.

## Treating American Foulbrood

By M. Wysong

I HAVE been having bad luck treating American foulbrood this spring. We have been pestered with it for several years; have had a few cases every year. We are unable to find the source; rather think that it is in some of the many bee-trees in the neighborhood. I have been successful in treating the disease until this spring, but failed completely this time. The method that I use is: Cage the queen for 10 days, then shake the bees in a clean hive with 5 frames of 1-inch starters for 3 days; then take the starters out and give them full sheets of foundation. The old brood-hive is on top with 2 super-covers, the top one with a Porter bee escape; leaving the old hive for about 20 days; leaving the young bees plenty of time to go below. Have never had the disease to reappear in the same hive until this spring. Last fall I even took the top hive that was partially filled with honey by a colony of American foulbrood and shook the bees in that hive-body, and they came through perfectly clean, as the hive has shown no sign of the disease. This was done after the honeyflow, when the queens were not laying, and I rather think that that is the secret of the success.

This spring I had 4 colonies with diseased combs, so treated them as before. I looked in the hive a few days later; saw that the queens were laying, so did not look at them for several weeks. Imagine my surprise in finding them in worse shape than before treatment. Of course, I was not long in going through the other hives, but found all the hives free of disease.

I treated them in a good fruit-bloom flow. Now there were no bees that got out of the old hive, as I always fasten the two covers on with staples.

Two of my neighbors had the same experience.

Did the bees from the old hive carry the disease down? (That would be my guess), or did some of the old criminals remember the source from whence they got the honey and do the same thing over? I wonder whether shaking them in a good honeyflow was what caused it.

Would like to hear from some more experienced man than myself.

We have had just a fair flow here. Weather conditions were against us for the last two weeks. Everything was very forward here, the basswood bloom was over about one week ago. Usually it does not begin until about the 10th of July here.

Kimmell, Ind.

(The most successful method with us is to shake the bees during the honeyflow as soon as possible after the disease is discovered. Of course, if you shake after they have quit breeding, there will be some chance of doing away with the disease between that time and the next spring. But there is always more or less danger of robbing when manipulations are done in a time of scarcity.

It is quite possible that your bees are getting the disease again from colonies in the woods. In that case it is a good plan to hunt the bee trees. But those would soon run out, on account of the disease.—C. P. D.)

## Bee Hunting in a Hot Air Balloon

By C. E. Fowler

YOUR August number just received, and I started to read it just before dinner, and although very tired and hungry I felt I must skim some of the cream off. I read transferring bees by using sulphuric ether, how far bees will go for honey, by L. B. Smith; then I ran right into a mountain of honey, by Lou Sites. I got so mad at Lou for leaving $400,000,000, worth of honey just because a few bees chased him that I immediately asked a friend to lend me his flying machine, but as he could not spare it, he lent me his hot air balloon; so, after stopping at a drug store to get some sulphuric ether, and calling at Smith's to get some of his strain of bees, I started out to find that mountain of honey.

Every mountain I would come to I would let out a few bees. Like Noah's dove, most of them returned until finally all the bees in the box got crazy, and when I let them out they started like robber bees for a mountain in the distance.

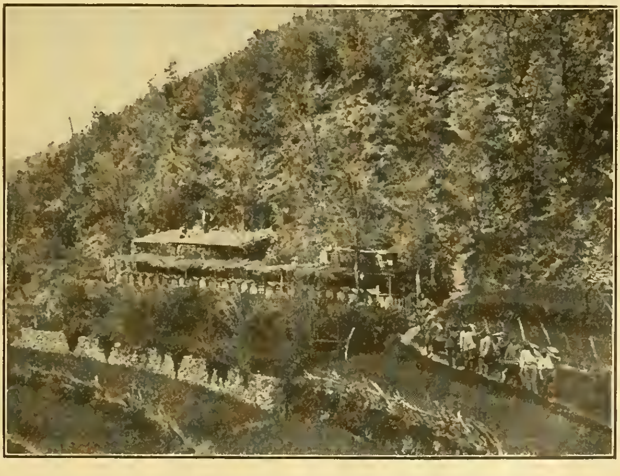
At first I thought it was a volcano in full blast, but it was the bees going in and out that fooled me.

I let loose some of the sulphuric ether and the cloud of bees dwindled until they were all **lying** quietly in a pile on the side of the mountain many feet high.

Upon examination I found these to be a distinct and entirely new kind of bee (**Apis imaginata**). Instead of putting their honey in small cells or long cells like the bees of Jerusalem, they put it in **one large sell** 100 feet in diameter and one-half mile deep.

While marveling at this great **sell** I met John D. Rockefeller on his summer vacation and I made arrangements to have him build a pipe line to tide water for half of the honey, but he wanted his share to be the first half, which did not suit me very well, and while we were quarreling over who should have the first half, the bees woke up. John got stung, and I heard the dinner-bell ring. (And the price of honey is still going up.)

Hammonton, N. J.



The Capponi apiary in May. The bee shed was built by Austrian prisoners, except the tiles of the roof.

## A Paper Winter Case

By A. F. Bonney

I HAVE evolved a plan of wintering which will, I believe, prove as good as any other, and at a cost, for material, of not more than 25 cents to the colony. As to time, two hours should be enough to make a case, ten or fifteen minutes to prepare the bees for winter.

I shall use a material of which hundreds of thousands of pounds go to waste in this country annually. I allude to the corrugated paper used in making boxes and packing cases, between fifteen and twenty thousand tons of which are made daily in the United States. All that a man can ever use may be had for the asking, and any sized pieces can be utilized, but the larger the sheets are the better.

Begin by making a box one-half inch larger than a standard Langstroth, in width and length, and as much deeper as required. If no cushion or packing material is to be used above, the form may be 12 inches high, but if the absorbent cushion is wanted make the form 14½ inches high, which will allow 3 inches for the cushion. Nail this box, open side down, to a board which must extend four inches beyond all sides of the form. Then across one end, which will be the front of the form, nail a board three-fourths of an inch thick and four inches wide. The ends of this must come flush with the sides of the form, and make the opening in the case for the entrance. Finally, give the form a coat of boiled linseed oil, so that accidental glue will not adhere to it.

The next step is to cut up paper boxes, getting as large sheets as possible; trim them, using a steel square and a sharp knife, then proceed to cover the form. This done, cover all cracks with strips of cloth put on with glue. In my experimenting I have found it better to cover the form with newspaper a couple of inches, which insured ready removal of the finished case, and the separate pieces of paper board must be held in place with nails until dry. Treat the other corners in the same way. Fill in between these pieces with corrugated paper, and now spots of glue will be all that is needed; then cover the sides, using nails, and let dry. You now have two layers finished.

In building subsequent layers put the bent corners first on the ends of the top, then on the sides of the top, then on the sides again, building up between pieces as at first, which will strengthen the case and make it warmer.

I do not know how thick this outer case should be, but as it rests on cleats nailed to the edge of the bottom-board, sides and back, enclosing the rim of the bottom-board, and is impervious to heat and cold, as well as air tight, one inch might be enough, while three would do no harm.

Finally, bind the bottom edges of the case with cloth, and coat the whole case with liquid asphaltum, such as is used in painting roofs. This will penetrate one or more thicknesses of the paper and make it impervious to air and water and inside heat. This paint retails at about 25 cents a gallon, and that will probably cover several cases.

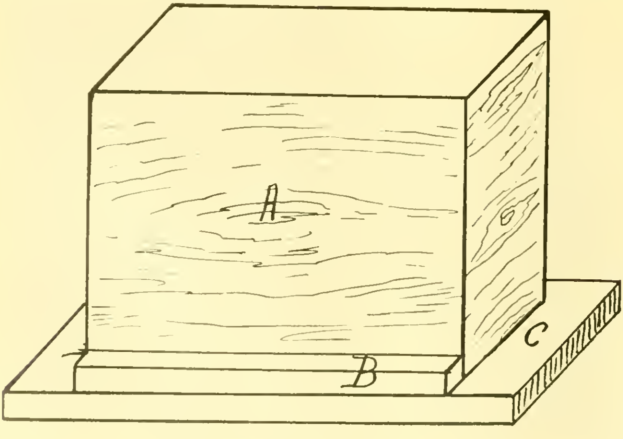
The case being ready, nail ¾x¾ inch strips around the bottom-board, sides and back. I mean by this, on the edge of the bottom, not on the rail, on which the brood-chamber stands, then make a board of the corrugated paper one-half inch thick, bind the edges with cloth and coat with asphaltum. This must be 19½ inches long and scant 14¼ inches wide and is to lie on the bottom-board inside the rails. This allows a clear half inch between the inside of the front wall of the brood-chamber and the edge of the insulating board, which added to the quarter-inch between the board and the bottom of the hive gives a good, large entrance, and one that opens downward, thus reducing the danger of clogging with dead bees or sleet.

The ¾-inch opening under the front edge of the case, at the entrance may be reduced by inserting a ¾x¾-inch block. My choice is for a 3x¾-inch opening, protected from mice, which would call for a block about 11 inches long. Moreover, I want the entrance of one corner of the hive, as it tends to protect the interior from direct effect of wind.

The cost of such a case should be small. The form, which could be made of cheap lumber, would last a long time, and need not cost more than sixty (60) cents for lumber and nails, while the glue and paint for the cases should not cost more than ten cents. If but ten cases were made the total cost should not be more than $1.60, or 16 cents per case. One hundred cases would cost about 10.06 cents each. This, of course, for material alone, against $5 to $7 for a quadruple case.

It would not be impossible to raise the rail of the bottom-board and use a thicker insulating board under the brood-chamber, but as heat goes up, and none escapes in this case, the half-inch insulating board may be enough.

Buck Grove, Iowa.



Cut 1.

A, form, B, block ¼x4; C, platform.

## A Letter From Italy

Friend Dadant: We have had a very late season here, the bees swarming as late as July 14. I have adopted your advice to spread the combs. I now place 11 where I formerly used 12.

The hives of my apiary, which you have once shown in the American Bee Journal, of which I again send you photos, have been painted with paint and oil of light yellow color, with double slope covers and look very elegant. But I have noticed that:

1. Unpainted hives are more healthful for the bees than painted hives.
2. However greater the cost, it is better to keep hives of bees under a shed than in the open air; they suffer less from the cold or the heat and work much better.

The past winter the snow has crushed the "pergola" which covered my hives, as you may see in the snow picture; so the past spring I rebuilt it with the help of Austrian prisoners. They made everything except the tiles of the roof.

I send my best wishes to yourself and your lady, to whom I wish to be remembered.

ENGINEER CAPPONI,
San Remo, Italy.

Our good friend, Engineer Capponi, is of the same opinion as Dr. Miller in his preference for unpainted hives. This preference is probably still more important in the mountains near the "Riviera" than in our dry climate. The advisability of a bee-shed or "pergola" is also greater there. But a shed is good for any apiary, were it not for the cost. Deep snow, so near the sunny Riviera, reminds one of Southern California, where you may make a big snowball and, in the space of a couple of hours, bring it down to the bathing beach, where it will melt on the warm sand of the Pacific shore.—Editor.

## The Winter Cushion

By L. A. Greeley

I USE shallow extracting supers and metal covers. For a winter cushion over the frames I find that an ordinary sack is just the thing, without any cutting off or sewing shut. The super is laid down on a level floor and the sack is loosely filled with maple or other forest leaves. The leaves are now crowded down until the sack will go into the super lying on the side. By reaching inside the sack the leaves are now carefully pushed into the corners of the super, after which the top of the sack is smoothly laid back over the cushion. Next I get onto the cushion with both feet and tramp it until it fits the super so closely that it may be carried to the hive without falling out. All is then placed over the frames and a 1-inch strip of paper is pasted over the intervening crack to exclude every particle of wind or air. This pasted strip is protected from rain and moisture by a curtain of oiled paper 7 inches wide hanging from top edge of super. Lastly, the metal hive cover is put in place on top of the super. Fertilizer sacks are thoroughly washed and aired before using.

Morenci, Mich.

## Taking Bees From a Tree

In your August, 1917, issue, South Dakota wants to know how to take bees from a bee tree. In answer, I will give my experience.

Make a shelf or bracket on the tree where the bees enter; bore a hole in a hive and insert a rubber hose or short piece of gas pipe. Connect with the tree, plugging all spaces around pipe so that bees must go in and out through hive and pipe. Before doing this, prepare the hive by putting in full-sheet foundation, or, if you can get it, drawn-comb is good; or, better yet, if you can get it, use a frame of young brood. In four or five weeks all the bees and brood will be in the hive, having transferred themselves. If left there too long, until the hive is filled with bees and honey, they will store the surplus in the tree. Look in at times, and when the hive has eggs and brood in it, remove it; but leave long enough for the brood in the tree to hatch. This may be done from April until in August. It is best not to use good hives, as there is danger of them being stolen or destroyed. After losing seven good hives I used common store boxes with Hoffman brood-frames. By the above method I got 20 stands of bees. All my neighboring bee-men thought I did fine. The next spring I had sixteen nice stands of European foulbrood. So, in my case, I don't think it paid to bother, as I lost the hives and got foulbrood. It is better, I believe, to buy a stand from a good bee-man, buy a good queen, increasing slowly, and whenever possible make the bees pay for their own supplies and fixtures. In this way an amateur may gain bees and experience together, and much information not obtainable in books.

CHAS. L. PIERCE,
De Pue, Ill.

## Breeding Good Queens

By L. Sherman

HERE is the plan I follow to rear good queens: Select your two best colonies to rear drones and your third best to furnish queen-cells. In the rest of your yard have in each hive an upper story with a queen excluder under it and an outer entrance for that upper story with a drone trap. Place all the combs containing drones in those upper stories and you will have no inferior drones to mate with your queens and no drone traps at the main entrance to bother the bees in their flight.

Alabama.

## Results of Wide Spacing for Extracting

By Alphonse Veith

DURING the past season I closely observed the advantage of wide spacing for extracting. The average yield of honey from 7 combs, full depth L. frames in an 8-frame hive-body, was 46½ pounds. The yield of 8 combs in the same kind of hive-body was 40 pounds only. Consequently, there would be a difference of 150 pounds for every hundred combs in favor of wide spacing. In using a 10-frame hive, how would it work to use 8 combs only, for extracting, with equal spacing?

## Old Time Subscriber

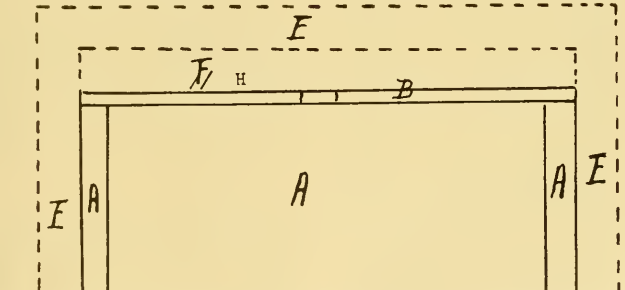
I started back in the 50's with Quinby's "Mysteries of Beekeeping" and have been at it ever since. I read the American Bee Journal when Newman published it in Chicago. I lived in Montana, near the Bozeman tunnel in 1883, '84 and '85. I bought a colony of bees from James Heddon, of Michigan, which cost me $18 delivered by express. The altitude was too high, as there was about 2 feet of snow fell on June 14 and half an inch of ice on the 4th of July. We went to a picnic at Bozeman with Buffalo overcoats on.. My poor bees took to the boarding-house table after sweets and drove the boarders out. The boarders were going to mob me and I had to destroy the bees.

JAMES HERON,
Kittitas, Wash.

## Packing Bees for Winter

By Alphonse Veith

THE late Henry Alley once wrote an article on this important subject, and he put special stress on the importance of top ventilation. He said bees need for their comfort about the same as a human being—a warm bed and plenty of fresh air. If bees are packed heavily, without any top ventilation, they will surely suffer from foul air and moisture. Therefore, do not place your top-board on the packing too tight; raise it about an eighth of an inch, and there will be a slight current of air that will dispel the moisture that would otherwise remain in the top packing. Long ago I made the experience that want of fresh air will kill the bees quicker than a severe cold winter.



Cut 2

AAA, brood-chamber; B, inner cover showing bee-escape hole; C, bottom-board; D, bottom insulating board, in place on bottom-board; EEE, shadow of packing case, resting on extra rim; GG, entrance; H, space for absorbent cushion.

# LEGAL SERVICE DEPARTMENT

## What Can Be Done Through Organization

In order to introduce the subject which we have in mind, we will quote from two letters which have recently come to this office:

> "There are places in the Dakotas where the rate—4th class—is higher than from here to New York City. There are points east where honey from California by car lots can be shipped in far below what it costs from here. That these rates are unjustly injurious to honey producers in this section any fair minded man will admit." MONTANA.
>
> "Two years ago a town in Northwestern Ohio considered prohibiting the keeping of bees, but a fight was put up and the ordinance fell through. At the present time another town is considering the same thing. I appeared before the council a few nights back, but have not the least idea what they will do. It is usually too expensive for the individual beekeeper to fight, but I believe that thousands of beekeepers would join an organization formed to combat unjust legislation. I will gladly pay $10 per year for this sort of protection." OHIO.

Since the above letters were not written for publication, no names are given, but they show the kind of legal problems that are constantly arising. For more than a year past the legal service department has had under consideration a plan of organization that would meet the needs of the beekeepers. After devoting considerable time to investigation it has been found that to be of real service, such an organization must be prepared to undertake legal assistance along broad lines.

Not only must it be prepared to fight unjust legislation, but the growing importance of the business makes it necessary to give much attention to freight rates. When discrimination is apparent it is necessary that the matter be taken up with the proper classification committees and evidence be collected to justify a fairer rate. Further, it must be prepared to handle claims for losses in shipment by freight and express for its members. In short, if there is any justification for an organization of this kind, it must be prepared to look after all kinds of legal matters for its members. One member will be threatened by an ordinance which attempts to make beekeeping illegal within the city limits; another will be unable to collect a small loss from an express shipment which is too small to justify litigation. In another locality the beekeepers will be seriously hampered by a freight rate which is too high, but individuals cannot undertake to spend two or three hundred dollars in taking it up. In another State there may be urgent need of legislation for the control of foulbrood or other disease.

In this big country of ours there are many problems, any one of which represents hundreds of dollars of loss to the beekeepers as a whole, but which can only be met collectively. Whether honey be given a third or fourth class rating in the freight classification will amount to many thousands of dollars every year to the beekeepers of a single State.

The only practical solution of these matters is the employment of a firm of competent attorneys by the year. They should be located as near to the center of the country as possible. Kansas City would be a logical location, since the beekeepers of New York, California or Texas would be within about equal reach. Every member of the organization should be entitled to turn over legal matter except actual litigation, without further expense than his membership fee. Shippers of package bees who have losses from express shipments could turn in their claims to the attorneys for collection; beekeepers threatened by unjust legislation could notify the organization and the matter would be looked after. At the start the business would not require the entire time of the attorneys, but there would be enough business from the first to require competent service of a high order, and this would of necessity be expensive. If the beekeepers generally will support such an organization all this service can be secured at a probable cost of from $3 to $5 per year per member. With a small organization the cost per member would be much higher. With a membership of 3,000 to 5,000 it would be easily possible to save in freight rates, losses recovered and other charges, several times the membership fees every year.

It would be the idea to attend to every kind of legal service relating to beekeeping for its members entirely without cost except when it became necessary to go into court for trial. In this event the association might furnish the attorneys' services for trial of the cases, leaving the litigant to pay his own court costs.

Our older readers will remember that in 1885 a Wisconsin beekeeper was sued by a neighbor who had lost some sheep and who claimed that the presence of the bees in the white clover in his pasture was responsible. The claim seems very ridiculous now, but it was a serious matter to the beekeeper who was sued. At that time there was very little in the way of legal decisions for the beekeeper to stand on, and it became necessary to spend a good deal of money in fighting the case. Out of this litigation there grew an organization known as the National Beekeepers' Union. The membership fee was 25 cents, and in addition each member contributed one dollar toward the defense fund. For a number of years this organization fought the legal battles of its members, and through its activities favorable decisions of legal questions were secured in a number of instances. It was later joined to the National Beekeepers' Association, and the legal protection was finally dropped when the National was reorganized. Thus the value of such an organization to its members has already been fully demonstrated.

We will be glad to use the space available for this department in a discussion of this subject by our readers. If enough beekeepers are interested it should be an easy matter to effect an organization, and The American Bee Journal will be glad to be of service. Tell us what you think of it.

## Advocates Heavy Packing

I THINK there is too much red tape about the question of winter protection, as some things ought to be very plain. The time to pack ought to be no later than October 10, for this latitude, and enough packing should be used to give the required amount of protection, which would be 10 inches on sides and 12 inches on top.

JUDSON A. JONES,
Continental, Ohio.

## Double Stories for Winter

For the second winter I am experimenting with a full body of honey over the usual brood-nest. The result last year satisfied me that I got splendid interest on the money represented in the extra honey left on the hives. I am coming to believe that winter losses are more largely due to scarcity of stores of good honey and to spring flying on cold days than to other causes.

H. R. SMITH,
Houghton, N. Y.

**Good Crops in Quebec.**—We are sorry to hear of your small crop in Illinois. Here, after selling 35 colonies at $15, I have harvested 2,925 pounds of honey from 89 colonies, spring count, and increased to 152 colonies. These we reduced since to 142 and may reduce them down to 135 for winter. They are in excellent condition. Honey is selling at 25 cents wholesale, but we cannot secure much more at retail.

JACQUES VERRET,
Charlesbourg, Quebec.

Every beekeeper should plan to attend at least one convention this winter.

# MISCELLANEOUS NEWS ITEMS

Father's tending beets and chives,
Saving us some money;
Mother's out among the hives,
Taking off the honey;
The kids are in the garden
Pulling out the weeds.
Don't we get a lot of food
From half a peck of seeds?

**Disease Diagnosis.**—"The Diagnosis of Bees by Laboratory Methods" is the title of Bulletin No. 671, by Mrs. A. H. McCray and G. F. White, of the United States Bureau of Entomology. This short Bulletin is intended to tell expert investigators, in a few pages, how to detect the different diseases, American foulbrood, European foulbrood, sacbrood and the nosema disease. Four cuts accompany the descriptions.

**Atkins to Iowa.**—Arrangements have recently been completed whereby E. W. Atkins, of the Extension Service Bureau of Entomology is to devote his entire time to work in Iowa. Atkins was experimental assistant to Professor Webster before entering the government work, and his friends in Iowa are glad to know that he is to return to that State, although in different work. With the return of Mr. Atkins, Iowa has three men devoting their entire time to the beekeeping work. Prof. F. Eric Millen, the State Apiarist, has charge of the teaching of beekeeping at the college, in addition to his official duties; Mr. Wallace Park is engaged in experimental investigation in apiculture, and now Mr. Atkins will be employed in extension work. When all the States are as fully organized, there will be rapid advancement of beekeeping as a commercial enterprise.

**The Field Day of the Federated Massachusetts Beekeepers' Association,** held jointly with the Eastern Massachusetts Beekeepers' Association, at the Norfolk County Agricultural School at Walpole, on August 17, drew a large and enthusiastic audience to hear the excellent program. After the address of welcome by the director of the school, Mr. Kingman, Mr. J. E. Crane of Middlebury, Vt., told delightfully of the curious marriage customs of the different flowers, and by his charming tale brought home the vast service rendered by the honeybee, apart from her value as a honey-gatherer. Following Mr. Crane were practical talks by Mr. Arthur C. Miller, of Providence, R. I., on "The Wintering Problem in New England;" Mr. Allan Latham, of Norwichtown, Conn., on "Pasturage," and Dr. Burton N. Gates, of Amherst, on "The Beekeeping Situation Today and the Future of the Industry in Massachusetts." Mr. Dallas Lore Sharpe also contributed a few words.

The announcement of the retirement of Dr. Burton N. Gates from the office of Inspector of Apiaries and Associate Professor of Beekeeping at the Massachusetts Agricultural College caused expressions of real regret from all sides. Dr. Gates has built up an apicultural department at the college second to none in the country, and while the beekeepers of the State felt that his call to a wider territory was to be expected, his loss to Massachusetts will be widely felt.

A rising vote of thanks was tendered Dr. Gates for the inspiration and aid which he has been to the beekeepers of Massachusetts and complimentary resolutions were adopted by the society.

DOROTHY QUINCY WRIGHT,
Secretary.

**Beekeeping Essentials.**—This is the title of a Bulletin, published by the Massachusetts State Board of Agriculture, No. 14, of which Professor Burton N. Gates is the author. It contains 32 pages and a number of good illustrations. It compares comb and extracted honey production, gives advice as to locating an apiary, the number of colonies which may profitably be kept in one spot, outapiaries, hive materials, supers, comb foundation, equipment, buying bees, italianizing, queens, management, wintering, diseases, etc. Massachusetts beekeepers should send to the State Board of Agriculture for this Bulletin.

**The Annual Meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association** will be held in Memorial Hall in Rockford, Ill., on Tuesday, October 15, 1918. All interested in bees are invited to attend.

B. KENNEDY, Sec.
2507 W. State St., Rockford, Ill.

**Wintering in Cold Cellar.**—I placed some bees this winter in a cellar under an outbuilding where I supposed the temperature would be about right, but instead I find it is too cold. The thermometer stands at freezing most of the time, and, according to tradition and all known authorities, this means sure death to the bees before spring. Now, why is this so? Why is there not some chance for bees to pull through under these conditions as well as when left out of doors without protection through all extremes of winter temperature, ranging from freezing to 20 or 25 below zero? If the bees in a cold cellar stand a poorer show, what is the reason for it?

The cellar I refer to is dry, well ventilated, temperature quite uniform at 32 degrees, and the bees are fairly quiet. I will either have to leave them where they are or set them out in the open air. Which would you advise? WISCONSIN.

Answer.—It is an error to think that the bees will not live because the temperature gets below the freezing point, but it has been proven that they will fare better either in a cellar where the temperature is kept between 40 and 45 degrees, or out-of-doors, if they can have a flight often. If the outdoor temperature is such that they cannot have a fly at all, during the same length of time, then they are better in that cellar.

The reasoning is as follows: When at a temperature between 40 and 45 degrees, the bees eat the least amount and therefore do not load their intestines with feces. So they can remain several months, the maximum of endurance being where the temperature is the nearest to the mentioned point and not over 55 degrees.

When wintered out-of-doors, the bees eat considerably more, but if they can have a flight on each warm day they relieve their bowels of the load. If the temperature out-of-doors remains low, say below 32 degrees, for several months, then the relief is not to be had and the cold cellar is better.

From your description, I would judge the chances very fair for your bees to winter well, especially if you have such low temperature as we have had to stand during the past winter in the Mississippi Valley. But if your bees have to remain for several months in a temperature below the freezing point, while the outside bees get a flight every few days, you will have less satisfactory results.—Ed.

**Bees and Red Clover.**—In a recent issue I noticed a discussion of the possibility of getting honey from red clover. There are localities where bees work on red clover oftener than they do on the white. I remember that one season in the Big Horn Valley, Wyoming, we left a piece of red clover go for seed, and the bees paid more attention to the red clover than they did to either sweet clover, alfalfa or white clover. As long as it bloomed they were continually on it. There are places where it is quite a honey-plant, and other places where it is not. Alfalfa, in the corn belt, is not a honey plant, but west of the corn belt it is.

The belief that red clover does not

yield honey to bees is a superstition brought from the old country. They say that when the Lord made the bees they insisted on working on Sunday and, since they would not desist, He forbade them the use of red clover. That superstition is all there is to it.
J. D. KAUFMAN,
Kalispell, Mont.

(We insert this letter because of the legend, of which we had never heard, and also because it is another evidence that red clover does yield honey in some places. But our own experience in the matter leads us to believe that red clover often contains honey that the bees cannot reach because of the depth of the corolla. Otherwise, why should only bumblebees be seen upon it when we can smell the honey in it and can actually taste it by picking a blossom and sucking at the base of the calyx? Friend Kaufman's experience has evidently been upon clover the corolla of which was more or less stunted by the dryness of the climate. But he is right when he says that some plants yield honey in some localities and not in others. The Swiss beekeepers are practically unanimous in saying that there is no honey in white clover in Switzerland. —Ed.)

**Another Experience.**—I have read Mr. Pellett's letter on "Red Clover as a Honey Plant." I wish to add my experience on the same.

In my first beekeeping I gave very little attention to the different sources of honey. I was too closely confined to my business, and kept a few colonies as a side line. It was in 1901 that I first took notice of red clover as a honey-plant. In that year, up to August, the honey crop was a failure. I had given no attention to the bees except to give them plenty of room for extracted honey. My folks would leave the honey-house door ajar occasionally, and still the bees did not give any trouble. It was in the latter part of August that I went out to see why the bees were so modest about invading the honey-house, thinking that there was no honey. Imagine my surprise on finding every space filled and the bees busy, all going east in the direction of a fine field of second crop red clover, much dwarfed by the dry weather. On my way through town I met another beekeeper, Mr. Pritchett, who kept an apiary of about forty colonies. I asked him to come and extract the honey for me, as I was getting ready to make an extended trip south. His reply was, "I don't know anything about extracting, and you haven't any honey to extract; my bees haven't any, and I know yours haven't."

I went on and investigated the clover field and found the bees in full force and, as busy as I ever saw them, gathering honey from red clover. On my way home I met Mr. Pritchett carrying two full crates of as fine section honey as I ever saw. I said to him, "Where did you get that?" His reply was, "After meeting you I went home and found I have plenty of it."

His apiary was within three rods of his kitchen door, but so quietly had the bees worked that he took no notice of their progress.

Again, in 1916, we had a fine crop of white clover, but the dry weather in July and August cut it off. Yet my bees continued to bring in honey. I again investigated the red clover, which was very much dwarfed, and the bees as busy as could be.

In both these cases the same conditions existed—the extreme dry weather had dwarfed the red clover and there was a complete absence of other honey-plants. The quality of the honey in both cases was the best. Perhaps a shade darker than white clover. It was very heavy. Of the 1916 crop we used the last in sections a few weeks ago. It kept in perfect condition.
B. A. MANLEY, Milo, Iowa.

**Losses in Southern Beekeeping.**—What is it? I had last year three yards of bees; in one yard I noticed, about the first of June, a patch of brood that had every aspect of European foulbrood. As I had never seen any disease at all I sent a sample of the brood to the Government and asked them what was the matter with it. They wrote back saying that there was no trace of disease at all and that the brood probably became chilled or overheated. I know that they had died of neither of these causes. The disease(?) affected several combs in this one hive and one comb in another hive. This was all that I could find in the three apiaries of 200 hives.

The larvæ died for a period of about fifteen days and the disease then disappeared.

This year, about June first, I found a hive affected with the same thing at another yard several miles from the one that had it last year. I also found, out of 75 hives, at least a third of them affected, and in a few days all were affected. I then looked over the other two yards and found that all of them were affected, also.

I at once sent a large sample to Washington. In about fifteen days I got a report saying "No disease at all," but to send another sample. Well I could not find any more. The disease had cleared up. And now all colonies are as healthy as I could wish.

But for a period of about a week I do not believe that a single egg that was laid in the 200 hives ever got to be a full-grown bee. They would begin to die, from a 3-day larva up to just about time to seal the cell over the cocoon.

There was no odor at all; the larvæ would turn a blue color and in a few days die and begin to shrink and gradually dry up to a scale, if the bees didn't carry them out before they got dried up; while a few would get ropy, just a little. Most of them were carried out of the hive after they had shrunk some.

I have looked into every book on bees that I have (and I have quite a few) and I can find nothing like it except a description of European foulbrood, and this has no odor. Most of these hives were Italians and some blacks. The blacks got it first and had it a little longer than the Italians, but I could not say that they showed less resistance to it than the Italians; in fact, I don't think that either of them showed any resistance to the attack; no eggs laid for a period of seven or eight days, matured into adult bees.

In Wilder's "Southern Bee Culture," edition of 1908 page 47, he says:

"While there is a loss, more or less of young bees in all stages of development, in many apiaries of the south, yet it is not always owing to disease, but to the source of feed, for there are certain plants that yield nectar or pollen that seems to poison the young bees, and they die rapidly for a short time, but soon it is all over and no more symptoms appear till that time next year. This loss of bees is small, and not of enough consequence for treatment."

But with me, with 200 hives in which for a period of seven days not an egg matured to a live bee, the loss is more than "small."

Next year, if the disease appears again, I will send brood to the Government and to anyone else who wishes to see a sample, and also to the editors of the different papers; but in the meantime, can anyone shed any light on the subject?
JOSEPH C. SCOTT,
Mt. Pleasant, Ala.

**Supers for Sections.**—I would like to give my experience with different styles of supers in hopes that it may be of some help to others who, like myself, may have found fault with some of the more common styles. I began keeping bees in 1908, with the regular beeway super and style 2 scalloped sections 4¼x4¼x1⅞ inches.

In 1909 I bought some plain section supers of both 4x5 and 4¼x4¼ styles and liked either much better than the beeway, as the separators were more durable and furnished a more comfortable place for bees to work.

But I was reading about this time a series of articles from Mr. Townsend to beginners, in which he advocated the placing of sections and frames in some supers at same time. I liked this plan from the start, and still use it to advantage. But for some time I did not find a super that would admit both sections and the regular Hoffman shallow frame.

In 1912 I bought some supers that used 3⅝x1½ sections, five in a tier, thus an 8-frame super holds 30 sections and a 10-frame 35. I liked these so well that I have bought nothing else since, though I am still using the other three styles mentioned above, but think I shall change them to conform to the last mentioned this season.

I claim the following advantages for them:

1. They are more economical and

convenient, i. e., they cost no more than other supers and hold more honey, and having no inside fixtures to nail, much time is saved in nailing. With no ends to section holders they are more convenient to fill, as sections always drop in place easily and fit so snugly to slats there is no room for bees to fill with propolis, consequently they are easier taken out and cleaned.

2. It is the only super I know of that is interchangeable with sections and regular Hoffman frames, except where sections hang inside of frames, which is undesirable.

3. If I need to feed in a super I can stack the slats and fences to one side, leaving room for feeder without having inside fixtures misplaced.

I speak strictly from a producer's standpoint, as I have no occasion to ship honey, and my neighbors do not care what style of section they get. For my use I would not consider any other section, as I think these are perfect. Am surprised that more is not said of them in bee journals and catalogs. G. E. LEMON,
Nash, Okla.

**Uniting Nuclei.**—I will describe a device that I find very useful in uniting nuclei or weak colonies. It has worked more perfectly with me than anything I have yet tried. I make a division-board of strips that fit tight on the bottom-board and sides and even with the top of cover. I cover both sides of this skeleton frame with wire cloth, so the bees can't fight through.

I move, let us say, three frames to one side and put in the division-board and a piece of oil cloth over the frames and then block up the entrance at night and move this colony to the stand of the one I want to unite it with. I slip the frames from the other colony in the other side of the hive, having the wire cloth division-board in, and leave that side of the entrance open.

In three or four days I release the other bees; or I can leave them longer, as they get ventilation through the wire cloth. They unite without a bit of quarreling.

I always kill the poorest queen when I first unite them.

Perhaps this is an old device, but I have never heard of it.
FRANK HAACK,
Marion, Ore.

**Wraps for Outdoor Wintering.**—When it is desired to wrap hives for outdoor wintering it is entirely unnecessary to buy building, roofing or other expensive paper. Use newspaper for all except the outside layer, which should be a fair quality of wrapping paper, such as merchants get in rolls for wrapping goods. This can be bought of almost any desired width. After all is in place, tie down firmly and then, with a paint brush, give a coat of the following mixture: Kerosene oil, 1 pint; raw linseed oil, ½ pint. This will so waterproof the paper that it will stand constant exposure to rain and sun for a year or two. L. A. GREELEY,
Morenci, Mich.

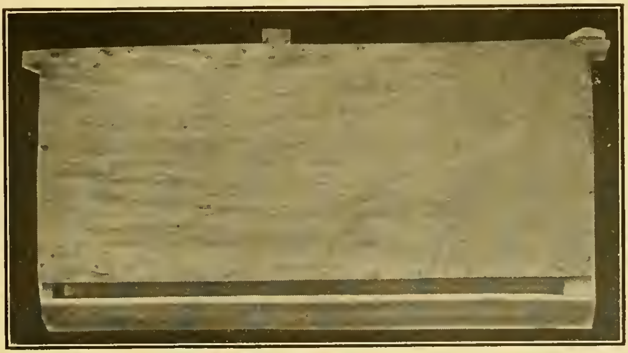
**Another Feeder.**—A good deal has been said in regard to feeding and feeders, but as I have never read anything in the American Bee Journal that comes up to my feeder, I am giving a description of it, as I think some of the subscribers may be benefited by it. I take a lid from a 2-lb friction-top honey can and cut a hole through it about an inch and a half across. Over the top side of it I solder a piece of galvanized screen wire, then I put it over the hole in an escape-board upside down, over this I turn a 5-pound honey pail with the lid closely perforated, and the bees can come up and reach through the screen wire to the perforations in the pail that contains the syrup. If it is desired to use more than one pail as many holes can be made in the escape-board as is desired. This keeps the bees out of the extracting super and yet you have an inside feeder less the trouble of the bees while replenishing the syrup. C. H. WILEY,
Harrisburg, Ill.

**Device for Transferring Larvæ.**—I have used many styles of spoons and scoops for the above operation, but not being satisfied with any of them, I designed the following tool, which works quicker, easier, and with no danger of injuring the young larvæ:

Take a piece of wood about three-sixteenths of an inch thick and 4 inches long and shave one end down to a long tapering point; next take a piece of horsehair about 6 inches long and double it and twist the two strands together to give strength and firmness. Now double again and lay the two doubled ends on the pointed end of the stick, leaving the horsehair project beyond the point of the stick to form a loop or ring about five-thirty-seconds of an inch in diameter; wind fine thread around horsehair and point of stick and it is ready for use. Hold brood-comb so that the light will shine down to the bottom of the cell, insert the ring or loop of horsehair to the bottom of the cell and with a gentle and slightly twisting movement you can easily get the young larva lying snugly through the ring when it (and most of the jelly) may be lifted out and placed in the artificial cell cup.
JOHN GRUBB,
Woodmont, Penn.

**Beekeepers' Conference.**—We have recently received a report of the fifth annual conference of the National Beekeepers' Association of New Zealand. It reads much like the reports of the conventions in our own country, with the usual problems of disease control, marketing, etc. The organization seems to be in a prosperous condition, with more than a thousand dollars in the treasury.

**Those Honey Stickers.**—The "Eat Honey" stickers which originated with Dr. Bonney and which have been sold here in America by millions are now finding their way into foreign land. They are being advertised to the beekeepers through the foreign journals and bid fair shortly to come into world-wide use.



The Saunders Feeder.

# A New Feeder

By Charles Boone Saunders

My invention is a bee-feeder which is made on the style of a brood-frame, or made to fit into brood-chamber the same as a brood-frame. This feeder has a reservoir and a trough, and with holes so placed with reference to each other as to conduct the syrup or honey from the tank to the trough. There is space left between the reservoir and trough large enough to let the bees to the syrup or honey. There is a rod in one end of the reservoir which is used to regulate the flow of syrup or honey from reservoir to trough. I fill the feeder through the hole in the top of the reservoir. After reservoir is filled I place a cork or wooden plug in the hole and after I have put the feeder in the hive I turn the rod that is at one end of the reservoir, as shown in the photograph.

This feeder can be made of any suitable material. The feeder can be used in the hive any time of the year. Bees, also, will not drown. It is a good feeder to use in winter or early spring. When used in spring for feeding you need not use a super.

Barrington, Ill.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

## Swarming

June 15 a colony was divided, leaving queen with very little brood on the old stand. Yesterday, just before dinner-time, this colony, to all appearances, swarmed, settling near by. Very soon all the bees returned to the hive, and, it being extremely hot, I let them alone for the time being. This morning I went to examine this colony, and on 3 frames found 7 or 8 queen-cells, most of them capped, there were also eggs (some) in the hive. The bees appeared so profuse in quantity that, beyond doubt, they desisted from swarming, for the time being at least. What should I do with this colony? PENNSYLVANIA.

ANSWER.—As I understand it, the question is this: A colony swarmed yesterday and returned. This morning's examination shows sealed cells present, also some eggs. The question is what to do this morning. It seems to be a case of swarming, with nothing unusual in the case except the return of the swarm, that return being likely caused by the inability of the queen to go with the swarm. Your guess is that the bees have given up swarming, at least for the present. My guess is that they are just as much in the swarming notion as ever, and that they will swarm again in the course of the day, or later. Possibly the queen may be able to go with them; possibly not. If not, then I should expect the swarm to issue with the first virgin that emerges.

The question, however, is: What shall be done this morning? There is a possibility, of course, that nothing need be done, but I wouldn't trust that possibility. If I wanted increase, I should take away all brood, with adhering bees, putting it in a new hive to build up. If I didn't want increase, one of the ways that might be adopted would be to destroy all sealed cells, put the brood above an excluder, leaving the queen below, and destroying cells above the excluder again about 8 days later.

## Beeswax From Honey and Pollen

In the August American Bee Journal, page 280, question 2, "What Do the Bees Get to Make Comb of?" your answer is: "Honey and pollen." Now, Doctor, I am not in a position to dispute your word, and would not do so anyway, but I have answered this question a great many times, saying "The bees make the wax from honey."

Just simply asserting anything does not prove it to be a fact.

Some years ago I found a colony of bees that had been robbed in November. I took the bees and put them in a box, without any comb. They were fed on sugar syrup. In February I looked into the box and saw as white comb as was ever built. The bees had not gathered any pollen during this time.

Whether we are both right, or both wrong, will not make much difference in the honey crop of the world, but I desire to know the truth. It is your turn to offer proof, now. OKLAHOMA.

ANSWER.—I do not see that there is necessarily any difference between my answer and your experience. For even though it should be a fact that bees can build comb without pollen, that does not mitigate against the possibility that they can do better with pollen than without it, and that they always use pollen when they can get it.

I can offer nothing from my own experience, but find the matter treated quite fully in Dadant's Langstroth at page 104, 1907 edition. It will be there seen that before Huber's time most apiarists believed that wax was made from pollen, either in a crude or digested state. Huber demonstrated, as you have done, that bees can construct comb when fed honey or sugar, without pollen, and that they cannot make it if fed pollen without honey or sugar; but he fell a little short of getting the whole truth, for "he did not prove that when *permanently* deprived of it they can continue to work in wax, or if they can, that the pollen does not aid in its elaboration.

"Some pollen is always found in the stomach of wax-producing workers, and they never build comb so rapidly as when they have free access to this article. It must, therefore, in some way, assist the bee in producing it.

"The experiments made by Berlepsch show that bees, which are deprived of pollen when they construct combs, consume from 16 to 19 pounds of honey to produce a pound of comb, while, if provided with it, the amount of honey is reduced to 10 or 12 pounds. If the experiment is continued without pollen for some time, the bees become exhausted and begin to perish. It is therefore demonstrated that although nitrogen, which is one of the elements of pollen, does not enter into the composition of beeswax, yet it is indispensable as food to sustain the strength of bees during their work in comb-making."

## No Swarms, Full Hive—Feeding Granulated Honey

1. I have 10 stands of bees, all in most thrifty condition. None of them have given me a swarm this season. I put on the queen-excluders and supers when the orchards were in bloom. Was that too soon, and cause of none swarming?

2. I have one bumper 3-story hive, supers being full size 10-frame. All well filled with honey. When it is time to take off the surplus I shall be in trouble, for the colony is so large it will be impossible for the mother hive to hold all the bees. What had I better do to save the bees and also the honey?

3. Can I feed last year's granulated honey successfully to my bees by setting it out in the orchard where the bees will easily find it? I have about 100 pounds of it, all in extracting frames. Will the bees work it up and store it? ILLINOIS.

ANSWERS.—1. Undoubtedly the abundance of room given, especially so early, had a tendency to keep down swarming. Most beekeepers, however, would consider it a desirable thing. At the same time it should be said that it is not generally desirable to give unnecessary room in fruit-bloom, because it costs something to warm up space not needed when all the heat should be conserved for building up. But when there is danger of crowding in the brood-chamber, then more room should be given.

2. Don't you worry about those bees having room enough. If there isn't room in the hive they can hang on the outside, and when it becomes cool enough you'll find them inside. A few days ago most of my colonies were three to five stories high, and every story seemed full of bees. I reduced them to two stories each, and the bees didn't appear any more crowded, and later on I don't expect them to have any trouble crowding into one story.

3. Yes, you can lay the combs flat on the ground under the trees, where the sun will not melt the combs, and as fast as the bees lick the combs dry sprinkle water upon them with a sprinkler. You may also set them out in hive-bodies, but it will be more trouble to keep them sprinkled. In either case you stand a chance of dividing with neighboring bees. It should also be added that if the honey from such combs is stored in supers, there is more tendency to granulation than there is on honey gathered directly from the flowers.

## Mixed Italians—Requeening

1. I have 10 colonies of 3-banded Italians that are mixed with the black bees; am thinking of requeening with Golden Italians. Are the Goldens hardy? I mean, can they stand our cold climate as well as the 3-banded? Are they as good honey-gatherers, and as gentle as the 3-banded?

2. What time in the year is best to requeen? How is the best way to requeen? MARYLAND.

ANSWER.—1. Goldens vary greatly. Some are as good as 3-banded in storing and hardiness, while others are inferior.

2. Other things being equal, you cannot do better than to requeen in fall, but not too late. Instruction for introducing a new queen hardly belongs in this department (it would take more than a whole number to give half that has been written about it); but you will find instructions in your bee-book, and instructions for introducing are sent by mail with the queens.

## Swarms—Comb Honey—Indian Corn

1. Suppose I get me a "swarming box" and have it ready for next spring; should it be put where bees are expected to swarm?, or should I hold it among bees while swarming and before they settle? Are they worth while?

2. Do bees prefer any certain kind of tree to settle on?

3. Should combs be wired in shallow frames if you run for comb honey?

4. When I have full story and full size frames and run for comb honey is it necessary to wire the same?

5. Are Indian corn tassels honey producing? TEXAS.

ANSWERS.—1. Much has been thought and said about swarming-boxes or swarm-catchers of different kinds, but if you have your queens' wings clipped you will find little use for anything of the kind. If you use the Manum swarm-catcher you will wait till the swarm settles, and then you will try to get the swarm into the swarm-basket, generally by shaking the limb on which the swarm has settled so as to make the bees fall into the basket, when you will dump the bees in front of the hive into which they are to enter.

2. I don't know that they prefer one kind of tree to another, but they have a decided preference for a place on which a previous swarm has settled, so that if a swarm settles on a certain branch of a tree today, several swarms may settle on the same branch on succeeding days in succession.

3. No wire should ever be in comb honey.

4. You cannot very well produce comb honey in deep frames, unless it be in deep frames containing sections. For wire is out of the question in comb honey, and without the wire, foundation thin enough to be used in comb honey would be likely to be torn down by the weight of the bees. You might use thin foundation in a deep frame by having a horizontal bar through the middle of the frame, making the frame equivalent to two shallow frames.

5. I think Indian corn is not considered a honey-plant, although bees get pollen from the tassels, and I have heard of their getting something like nectar from the joints of the leaves.

## Queenless Bees

1. How many ounces of honey are supposed to be in a pound in Pennsylvania?

2. Is there any State bee man in this State; if so, what is his address?

3. Will bees carry in pollen if they have no queen with them in the hive?

4. Is cutting out queen-cells a good plan to keep bees from swarming?

5. If I put a late swarm in a hive, in a few days another small swarm issues and I put that one in the same hive, will the queen that is in the hive kill the one that is run in with the last swarm, and will the hive of bees do well?

6. One of my colonies swarmed this season. I put the swarm in the hive and in half an hour they all went back to the old hive. The next day they came out again. I tried to hive them, and they went back again. In two weeks they came out again. I tried to hive them, but they would not go in the hive, but went back and lit on the roof of the old hive. What was the cause of these bees doing this? PENNSYLVANIA.

ANSWERS.—1. Honey is sold in all the States by avoirdupois weight, 16 ounces to the pound.

2. Address Prof. T. G. Sanders, Harrisburg, Pa.

3. Yes and no. I think it's this way: When a colony becomes queenless, the bees continue to gather pollen; but when there is no longer any brood to feed and a surplus of pollen is on hand, little or no pollen is gathered.

4. In some cases cutting out queen-cells will prevent swarming, but generally it will only delay it for a time, if it delays it at all.

5. If both queens are laying queens, or both virgins, the bees are likely to do well; but if one is a laying queen and the other a virgin, there may be fighting. In any case, one of the queens will be killed, perhaps by the bees rather than by the other queen.

6. I don't know. It might be, however, that there was some trouble with the old queen, so that she could not go with the swarm, which would account for the return of the swarm the first times, and then two weeks later there was a young queen (the old one having been killed), and then it might be that the bees merely swarmed out with the queen on her wedding trip and then returned.

## Gasoline for Foulbrood

Is it true that gasoline will kill foulbrood germs? If so, how would it do to paint hives, cover and bottom with it? Do you think the bees would again work in built-out frames dipped in gasoline after having been cleaned out? CALIFORNIA.

ANSWER.—I don't think gasoline would be at all effective. I think bees would use combs that had been dipped in gasoline; but I don't know how long it would take for the combs to dry out enough to be used.

## Speed of Extractors

1. What number of revolutions per minute should an extractor make?

2. How long should a comb be revolved to obtain best results?

3. Is there any arrangement by which the slip gear improvement can be applied to the old Cowan reversible basket extractor?

4. Is an alcohol barrel, such as can be obtained at the druggist's, suitable to store honey in? MASSACHUSETTS.

ANSWERS.—1. To give a definite answer to your question definite conditions should be given. If one extractor has 6 inches from the central shaft to the comb and another has a less distance, the latter will require a greater number of revolutions in a minute. If it has a greater distance, it will require fewer revolutions. If the combs are old and tough, it will be well to run them faster than would be safe with new and tender combs. The proper speed for honey that is very thick and rather cold may be four times as great as for honey that is thin and warm. With extractors of different sizes, combs of different strength, honey of different thickness, and of different temperature, you will see that there might be a thousand different answers. So there is wisdom in not attempting to give a definite number of revolutions per minute. After you have had some experience, and have broken a few combs in running too fast, there is little doubt you will be able to tell about what is the right thing in *your* case.

2. Again I don't know. It varies with varying circumstances, and you'll have to learn by experience, just as others have done.

3. I doubt it. But I don't believe the slip-gear makes such an immense difference.

4. Yes.

## Fall Treatment of Foulbrood

I have what I believe to be American or European foulbrood in one of my colonies. I want to use the McEvoy method of brushing the bees on frame foundation and keeping them confined for four days. I note you say wait until the honeyflow is on. That would be next June. Could I at once, after confining bees four days, put them into a hive containing about 30 pounds of honey? Or should I wait until spring? NEBRASKA.

ANSWER.—If it is European foulbrood, I wouldn't use the McEvoy treatment, but cage the queen for 10 days. That's in case the disease is not bad and the queen is a good one. If the disease is bad, destroy the queen and manage so that a week or 10 days later there shall be laying in the hive an Italian queen of best stock. If it is American foulbrood, don't wait till next June, but follow McEvoy's advice, and as soon as there is no longer any *unsealed* brood in the hive exchange the combs for combs of sealed honey. That's all the treatment required. Before doing anything, better right away send a sample of the diseased comb to Dr. E. F. Phillips, U. S. Department of Agriculture, Washington, D. C., and he will tell you which foulbrood it is and send literature as to treatment. If you write in advance he will send you a box in which to mail the comb. It will cost you nothing.

## Removing Foundation

I have a strong stand of bees and they had three supers on that were pretty well filled. I raised the three up and put on a super filled with the one-pound sections that had foundation in them. When I looked in them the other day I found that they had taken all the foundation out of the two outside rows of sections. Now, what caused them to do that? I have another hive that has got a super on that I put on the same way, only I put it on top, and this hive has got the 27 pound sections nearly full of honey. ILLINOIS.

ANSWER.—I don't know. I should guess that it was pretty hot and a heavy mass of bees might have broken down the fastening of the foundation; but in that case it would be more likely to be the inside instead of the outside sections.

## Prime Swarm Swarms

In 1916 we bought a queen and 3 pounds of bees. Same proved to be of excellent stock. This same colony, on June 4, this year, cast a prime swarm of immense size. We hived it in a 10-frame hive, and on July 20 this same prime swarm cast a swarm, also of large size. Now, I understand a young swarm hardly ever swarms again that season. The hive that cast the swarm had 4 supers on, 2 of them had 56 well filled sections, and some work done in the other. Why did this swarm act as it did? MINNESOTA.

ANSWDR.—I don't know that I can give any reason why a swarm occasionally sends out a swarm. Possibly because very strong and of swarmy stock, or because in some way the queen feels crowded.

## Poison From Propolis

I have been keeping bees for a few years and have been right successful. But something about the wax poisons my skin and makes me break out, so I am afraid I will have to quit. I went to a local druggist physician and he recommended washing in a saturated solution of borax water. This gives me relief in a measure for the time. Can you recommend something which would enable me to get rid of the trouble without quitting the bees? COLORADO.

ANSWER.—I am sorry to say I cannot help you out. I think it likely it is the propolis that makes the trouble, some skins being peculiarly sensitive to it. The trouble comes especially at the time of scraping sections, when more or less dust must be flying from the dry propolis. In such a case it is better to give up comb honey and extract. If, however, the trouble comes with you when producing extracted honey, I'm a little afraid the best thing is to give up bees. Something was written on this subject in the June number, page 202.

## Queen-Excluder—Drone Combs

1. Do the Dadants usually use an excluder for queen in their large hives to produce extracted honey? Do you advise an amateur to secure queen excluders if he uses the Dadant hives?

2. I often notice this advice: "Cut out all drone-comb found on brood-comb frame and replace with foundation or worker comb." How can this worker comb be fastened? Won't it make a very uneven brood-frame, and won't the honey-cells be cut and honey run out and injure said brood-frame?

3. In wintering in 10-frame regular hive, is it necessary to leave on one or more supers, or do you remove all supers? All bees are wintered outdoors in our climate. ALABAMA.

ANSWERS.—1. The Dadants use no queen-excluder under their extracting-supers, but these last contain shallow frames. If you use them the same as the Dadants, it does not seem necessary to use excluders.

2. The patch of worker-comb to fill in the hole made by cutting out the drone-comb is made a trifle large, and is squeezed into place and held there by the tight fit. After the bees are done with fastening it in, you will hardly notice any unevenness, and the comb will be as good as if there had been no patching. The dripping of honey would be easily cared for by the bees, but this patching is usually done at a time when little honey would be in the way.

3. Usually all supers are removed at the close of the honey season, although some leave on a super for winter, generally packing it full of some light material, such as chaff, leaves, or planer shavings.

## Increase—Foulbrood—Apiary on Shares

1. Would it increase the population of the hive to leave full supers on hive till late in the fall? I should think that feeling rich, they would be more lavish in brood-rearing.

2. How could I unite the bees of an American foulbrood colony to a clean colony without danger, in the fall?

3. What kind of an agreement could I propose to a farmer regarding an outapiary? I drew one up on a typewriter with the aid of a young lawyer which so scared the farmer that he turned me down flatly. ILLINOIS.

ANSWERS.—1. I don't believe it would make any difference.

2. If you wait till there is no more unsealed brood, I don't believe there would be any danger.

3. In most cases there is no agreement in writing, and in most cases there is no trouble. Indeed in most cases there is no agreement as to anything the farmer is to do, only he gives permission for the bees to be put on his land, and then, if the beekeeper is wise, he will give the farmer enough honey so that the farmer will want the bees to continue. In some cases, however, the farmer is to do something in the way of taking care of the bees, as hiving swarms, in which case a definite agreement in writing would be advisable.

## Bees on Shares

G. has 6 swarms in old box hives and has no time to give them.

F. would like to transfer them, introduce Italian queens and run them for extracted honey.

Would you suggest a plan of division of profits that would be fair to both parties, F. doing all the work, but bees staying on G.'s place? NEW JERSEY.

Answer.—It is hardly possible that there can be any fixed rule that would apply in all cases, and each case must stand for itself. Suppose G. is perfectly competent to take care of the bees himself, but is so crowded for time that he would rather have some one else do the work, while F. is only a beginner, and would like to do the work for the practice. In that case F. might be well satisfied to get one-fourth of the honey, leaving G. three-fourths. But if G. knows nothing about the care of bees, while F. is thoroughly competent and has all he really cares to do in taking care of his own bees, the latter might not care to do the work for less than three-fourths, or even more, of the honey. Possibly conditions might be such in most cases that an even divide would be not far out of the way.

### Winter Protection

I have wintered my bees the past three seasons in quadruple winter cases with very satisfactory results, but as I increase in number of colonies I would like to get a simpler method and am planning to arrange as follows: I group my colonies in twos, use three brood-chambers for each, putting the bees in the first and second stories, packing the exposed sides and top story with leaves or chaff, and packing the rear with leaves, held in place with poultry netting. I have never seen this plan suggested, but it certainly is economical, and I believe that with the stores arranged as above the accessibility of stores and the conservation of the heat of the colony will be better secured than with bees confined to a single story. What do you think? NEW YORK.

Answer.—I have had no experience in the case, and one can seldom be sure how a plan will turn out until it is tried, but I see no reason why you should not make a success with the proposed plan.

### Swarm Would Not Stay in Hive

A telephone lineman asked me to get a swarm out of a cable box on the top of a telephone pole. I had an extra hive, but did not have any frames for it, so got the bees into the empty hive and as the comb was fastened in among the telephone wires, cut it out the best I could and put it in the hive and took it home. I left it just as it was for five days and the bees seemed to be working and nicely settled, having some brood and some honey. The hive was an 8-frame, so I got six frames all ready with full sheets of foundation, took out brood and comb, fastened it all in the other two frames and put all eight frames in, the two with brood in the center.

While fastening in the brood-comb some of them were just emerging and crawled about, unable to fly. The bees were not very cross, and it took only a short time. I did this toward evening.

The next afternoon, about 4 o'clock, these bees swarmed. I put them back in the hive. Next day at noon they swarmed out again. I looked the hive over, but saw nothing wrong. Young bees were emerging and the bees had done nothing to repair the comb. I put them back in the same hive and they went right in. The next morning, about 7:30, all bees were gone except the young bees just hatched, who were crawling around the entrance.

What do you think caused the bees to act in this manner? I did not suppose they would go away and desert their young. The hive is one from which I transferred a colony into a new one this spring and which I cleaned up and repaired in good shape. IOWA.

Answer. Without any fuller information, it's a matter of guessing, and the safest guess is that the hive was in too warm a place, and enough ventilation was not given. That's the cause of such desertion in the great majority of cases. When bees are put into a new hive, the hive should be well shaded! Even if shaded, there may not be ventilation enough, and, for a few days at least, it is well to raise the hive on blocks an inch or more, and to shove forward the cover so as to allow a space of half an inch on top at the back. It should be said, however, that it is quite unusual for bees to leave a hive with brood in it, and it may never happen to you again.

### Foulbrood

1. I am sending you some kind of a bee. Can you tell me what it is? I caught it working on the red clover. There were a good many of the same kind of bees gathering both pollen and nectar from the red clover. I never saw a bee like it before.

2. My bees are diseased, I think, with European foulbrood. I have caged the queens for ten days, then released them. The foulbrood was still in the hive at the end of the ten days. Will the bees clean out the foulbrood, since I have released the queens?

3. How soon will I need to look at them again?

4. If there is any foulbrood when I look at them, what shall I do?

5. Had I better kill those queens, or cage them again?

6. If I kill the queen, will it do to let the bees raise their own queen from their own brood, or from brood from other colonies?

7. If foulbrood shows up after the honey-flow, what shall I do? IOWA.

Answers.—1. It has the appearance of a megachile, or leaf-cutter bee.

2. If it is the European variety of foulbrood, in all likelihood you will find it disappear. At the end of ten days there may be black-looking dead brood in the hive, but the bees will not eat it to continue the disease. But why don't you send a sample to Dr. E. F. Phillips, U. S. Department of Agriculture, and learn for certain what the disease is? It will cost you nothing, and you will not be working in the dark.

3. It is not very important just when you look, but it might be ten days, two weeks, or more, after the queen renews laying. If you then find no large unsealed brood with a distinctly yellow tinge, you may know there is no European foulbrood, although, being in the neighborhood, it may reappear at any time.

4. Treat it again.

5. If the case is mild and the queen a good one, cage her; otherwise kill her, for in a very bad case it seems to affect the queen so she is not worth saving. At any rate, you should get into each hive, as soon as you can conveniently, a good Italian queen.

6. Yes, only to let them raise a queen themselves will make an unnecessary break in brood-rearing, which need not be longer than ten days, and possibly less.

7. I'm not sure whether you had better do anything till honey yields next year, only you should, right away, send to Dr. Phillips and get free literature informing you pretty fully on the whole subject.

### Introducing Queens—Pickled Brood

1. Which is the best way of introducing in the fall, when there is no more brood in the hives, nor any honey coming in? Earlier I would have used your plan, to set the colony made queenless, on a new stand, leaving a frame of brood on the old stand to catch the old bees. Do not you think such a dividing at said season would disturb the colony too much for successful requeening? (They are valuable queens from Italy.)

2. What do you think of the distress method of Mr. A. C. Miller and of Baldwin's smearing plan, in the June number of American Bee Journal?

3. Which treatment would you recommend in the following disease, which I believe to be pickled brood (please state whether I am correct)? Brood dies in the combs after they are sealed. The pupæ shrivel up so they may be easily shaken out of their cells, of which cappings show a large perforation, with rims cocked up. The pupæ are not dried up nor modified in color, in fact, the bees pull them out of the hive and, as no hatching takes place, the colony dwindles rapidly. The queen, however, keeps laying, and even several eggs are sometimes to be seen in the same cell. The larvæ seem, ordinarily, not to be suffering before they are capped over (except in very bad cases, when they are also thrown out of the hive.) The disease seems very contagious, as all the hives in an apiary may be affected. In rare colonies it cures by itself, but in most cases it causes sad havoc. Transferring bees from skeps to modern hives in such apiary is sure to result in diseased brood in the new hive. I must add that there is no disagreeable stench, and I have found none of it in a sample sent me. Such disease is not described in our modern books. Ancient authors like Debeauvoys and Hamet mention it in their writings, but do not seem to consider it very serious (though Hamet-Sevalle says it might result in foulbrood). FRANCE.

Answers.—1. Introducing a queen very late in the season may be the same as at any other time, except in one particular. When it is so late that you no longer expect brood to be reared, then you can allow the queen to remain caged in the hive 3 or 4 days, or even a week, before allowing the bees to release her. This longer time of allowing the bees to get acquainted with the queen—or allowing the queen to get the colony odor—will make the introduction safer.

I don't think any ill results would come from ridding the colony of the older bees, even late in the season, by moving it away, leaving a frame of brood in a hive on the old stand to catch the returning field bees. Instead of putting it on a new stand, I would proceed in this way: Set on the old stand a hive containing one or more combs (with brood in one of them, if brood is to be had), then on top of this put the hive of combs and bees. Of course this top hive has its bottom-board, so that there is no communication between the two stories. In a few days, when the queen is well introduced, all may be put together in the lower story.

2. Each of these methods is successful in the hands of some, while others do not succeed.

3. I'm not an expert on bee diseases, and don't dare advise. If you send a sample of diseased comb to Dr. E. F. Phillips, Washington, D. C., you may get the desired information.

### Packages vs. Nuclei

1. Which would you consider better in my climate, to buy about May 15 for increase, 2-pound packages at $5, or 3-comb nuclei at $6?

2. Will bisulphide of carbon be satisfactory to kill a swarm of black bees lodged in the walls of a house? Sulphur has had no effect upon the bees, the cavity being so deep.

3. Will sweet clover seed itself down year after year if it is planted in waste places and roadsides?

4. What is a good way to transfer a colony in a Danzenbaker hive to a 10-frame Langstroth without cutting the combs?

5. Do bees ever seal honey before the cells are full, as in case of a fall flow, where there is not enough honey left to fill them up?

6. Can I get combs built from full sheets of foundation in the fall by feeding a little thin syrup every day? NEW JERSEY.

Answers.—1. Perhaps the nuclei.

2. As you say the cavity is deep, that sounds a little as if the entrance is at the top of the cavity. In that case the bisulphide should work better than the sulphur, for the fumes of the sulphur rise and those of the bisulphide fall. If you use enough of the bisulphide and keep it closed tight, not opening for 24 hours, it may succeed.

3. Yes, but it yields seed only in its second year; so, if you want it to bloom each year it must be sown two years at start.

4. I don't know of any way unless it be to get a set of combs, Langstroth size, or frames filled with foundation, and brush the bees upon these. Then you could put on this an excluder and the old combs on top for the brood to hatch out.

5. I don't think they ever do.

6. No; you would have to feed a good deal, unless the bees were gathering, and if they were gathering enough you would not need to feed at all.

### Packing—Bees Dying on Snow—Old Comb

1. Our hive covers are 6 inches deep. Will a gunny sack filled with wheat straw, placed in the cover make a good packing above the frames, absorbing the moisture, etc?

2. May the sack of straw be allowed to rest directly on the top-bars?

3. Would it be well to place paper on top of the sack?

4. Last winter a number of bees would come out of the hives, carrying dead bees; alighting on the snow, they would become numbed and freeze. Were the hives too warmly packed, or should the snow have been cleared away?

5. When bees begin to tear down old comb and build in new in patches, should the old comb be replaced with foundation?

6. Do the bees use the old wax from such combs over again?

MISSOURI.

Answers.—1. Yes; leaves would be much better.

2. It would do all right, except that the bees will gnaw holes in the sack. So there should be something for the bag to rest on in the way of a thin board covering, but not entirely close, or else some kind of cloth.

3. It would not make such a great difference, but still might be of use. Paper is good to stop air currents.

4. Sweeping the snow away for a few feet, or covering it with straw or something else would have been good. Even tramping the snow would help, as it is the softness of the snow that makes the trouble, the bees sinking down into it.

5. I don't know that bees ever tear down comb merely because it is old, but because it is objectionable in some way. Anyway, if only a small spot appears objectionable, it may be patched with foundation, or, still better, with drawn-out comb. If the whole comb is bad, as it may be when left for a long time out of the care of the bees, then it should be replaced with a new frame of comb or foundation.

6. Not as a rule, although I'm not sure but they sometimes use it in propolis.

### Royal Jelly—Transferring

1. What is royal jelly and what color it it?

2. Where is royal jelly found?

3. How much is needed to rear a queen?

4. What is best to do, let bees swarm, or use Alley trap to keep them from swarming?

5. I had to transfer some bees from a box-hive; I used the drumming plan, and, to my surprise, they wouldn't drum out at all. I will tell you how I went about it, and my question is, tell me where I made my mistake? I put an empty box on top of the old box-hive, but first I smoked them good and turned it upside down, then I started drumming, and I drummed about an hour; did not drum a bee out of it.

6. After transferring I found it necessary to feed them. I fed with a division-board feeder. Soon after I fed them they made quite a noise around the front of the hive. There was no robbing or fighting; but why did they make that noise?

7. If bees are left out of doors in winter should they have an extra cover over them?

8. Should each hive have a cloth cover between the frames and top, or does it make any difference?

9. Which pays the best, extracted or comb honey?

10. Do you know where I could get some basswood trees? If you do, give the address.

ILLINOIS.

Answers.—1. It is the food given to the larvæ which are to be reared as queens, and in color and consistency looks much like thick cream.

2. In queen-cells.

3. I don't know. In a queen-cell about to be sealed you will find as much as the size of a pea; but it is not all used by the larva, for when the young queen emerges from the queen-cell you will find quite a portion of it left in the cell, dried into a stiff jelly, quite a bit darker than when fresh.

4. For you it will probably be better to let them swarm. The Alley trap does not prevent swarming; only catches the queen when the bees swarm. Then the swarm returns, only to swarm again if nothing is done.

5. Likely you did not drum hard enough. You must drum hard enough so the bees will say, "This place is going all to pieces; better we climb out as soon as possible."

8. It was because the bees were excited.

7. Yes.

8. Many use no such cloth, but have only a bee-space between the top-bars and the cover.

9. Extracted, generally speaking.

10. Try any nurseryman.

### Strange Behavior

I have had a peculiar experience with an Italian queen. She was with 2 pounds of bees and she soon had a fair colony, but one day I noticed quite an uproar among my bees. I soon saw quite a lot of bees entering another hive, and bees all around fighting, and many dead. I stopped the entrance. I soon saw a bunch of bees near the entrance of the hive, and when I brushed them apart the queen was there. I picked her up and put her in her own hive and put a queen-cage over the entrance. A short time after that I noticed quite a disturbance around another hive and noticed the queen with almost all of her colony near the entrance of that hive, which was a double hive, and not knowing it was the same queen, I took off the upper hive and set it aside and put her in the lower hive. I soon discovered she was the same old queen. I then took the hive and brood she left and put it in the hive she was in. I would like to know what was the cause of the trouble. She had plenty of brood and of honey.

IOWA.

If I had been on the spot to see the whole performance, maybe I could have told what was the trouble, and maybe I couldn't. It looks a little like regular swarming, the bees foolishly trying to enter other hives. Sometimes they do that way.

## Transferring Bees in Georgia

By F. M. Baldwin.

Mr. J. O. Hallman, who was with J. J. Wilder of Cordele, Ga., last season, is setting up for himself. He uses 8-frame hives and runs for chunk honey. Cypress dressed on both sides is bought by the car load and cut on a small power saw as he has time and his needs require.

His yards are scattered over a radius of 25 miles and he uses a one-ton Maxfer truck in visiting them. Bees were bought where he could find them in reach of his home yard. Many of them were in old-fashioned gums, but he also found a goodly number in L. hives at a reasonable price. He has over 200 colonies.

The roads are fairly good, only one yard being off the main thoroughfare. This yard is the farthest to which he has to go, being a few miles beyond Rhine, on the Seaboard railway. He has only about two miles of bad road in this journey.

There were 35 gums in the home yard, four of which swarmed and were hived on full sheets of foundation in 8-frame Langstroths. Most of these old gums are made of inch and a quarter lumber, the outside measure being 12x18½ and 12 inches deep. They are an attempt at a movable frame. Cleats are fastened on the inside of the ends of the box and five frames made of plastering lath are hung on them. No attempt is made to keep the combs straight. But in the super, which is six inches deep, full sheets of foundation are fastened in the five lath frames, the plan being to have straight combs for the chunk honey trade of the neighborhood. The space between the top-bar of the hive and the bottom-bar of the super is rather more than an inch and is usually full of brace combs when the super is removed. I believe Mr. Hallman bought 30 of these and five of the long, slim gum, so dear to the hearts of our fathers. These have been brought to his home and are about 50 feet west of the factory, in a long, straight row near the fence that separates this yard from the house.

The gums are on the ground and a one-story L. hive is set on top. This is filled with foundation wired in the frames. If there was any honey in the super it was put on top of the new hive as a bait to draw the bees into the new hive. When there was no old super with surplus left over from last fall a bait comb was used as soon as it could be spared from a hive in which the bees had been industrious enough to start work above the brood-chamber.

No attempt will be made to confine the queen to the new brood-chamber. She will be allowed the freedom of the whole hive. About the first of October, or as soon thereafter as brood rearing is reduced to the minimum, the old box is to be taken from under the new hive and torn to pieces; whatever honey and wax may be found in it will be cared for and the bees will then be in modern hives. Of course, they will be given a good smoking from the bottom to drive the queen up if she is down below before the bottom is disconnected from the top. Mr. Hallman used this method of transferring when he was with that most extensive of all our beekeepers, our friend J. J. Wilder, of Cordele, who has 5,000 colonies in some 75 yards of southern Georgia and northern Florida. Most of Mr. Hallman's bees are the black kind, and he does not plan to Italianize them at present. They are industrious and doing well. Two hives are worth careful attention. The treatment in their case is different. They have been turned down on the side, a 3-inch strip removed from the upper side to make a good-sized opening, and an 8-frame L body set over the opening. Then a board is nailed on the bottom to close up that big open space, leaving as much entrance as may seem desirable.

The above plan cuts out a lot of muss and leaves the actual work of transferring largely to the bees themselves.

Perhaps a word as to the probable flow at Helena and through this section of South Georgia may be in order. Our work begins with maple in January. Fruit bloom and chinaberry carry us to poplar in March and April. Gallberry begins before poplar ends. In the summer we expect nectar from cotton and in October and late September the fields are full of what I think is burr-clover. Just what the average crop in the neighborhood will be under modern management is a matter of guess, as no one has tried it out.

Apiary of H. M. Leach & Sons, Hiram, Ohio

### Gates to Ontario

Dr. Burton N. Gates has resigned his position at the Massachusetts Agricultural College at Amherst, to become Provincial Apiarist of Ontario. He succeeds Morley Pettit, who recently resigned to devote his entire attention to his commercial apiaries. Doctor Gates has been a prominent figure in the beekeeping world for some time. He was formerly a member of the apicultural staff in the U. S. Department of Agriculture and later head of the beekeeping department at Amherst. An extended announcement by Mr. Pettit will appear in a later issue of this journal.

**Australian Surplus.**—According to the Australasian Beekeeper there is a large surplus of honey still waiting for shipping space for export to Europe. There is said to be a surplus from this year's crop in New South Wales alone of two thousand tons. The total available from Australia is estimated at from three to four thousand tons. The better organization of New Zealand beekeepers is given by another journal as the reason for their better success in getting their product to market.

**Value of Co-operation.** The New Zealand Co-operative Honey Producers' Association announce that they have a good selling organization in Great Britain and that they have secured a guarantee of a minimum net price of 15 cents per pound to their members for a period of three years following the war. This is nearly double the guaranteed price previous to the war. To beekeepers who have to go half way round the world to get to market a guarantee of 15 cents net for their product for three years after the war is very good. This is a striking instance of the value of organization. Just now our American beekeepers are profiting by the foreign demand, but unless they can get together and act in harmony they will soon find that the beemen of other countries have captured the foreign market when the war is over. Now is a mighty good time for the beekeepers to organize and prepare to offer their crops together. Organized beekeepers are getting, even now, higher prices than the unorganized ones are getting. A total of several carloads attracts the big buyer, who cannot be tempted by the small offering of a single beekeeper. Colorado beekeepers set the example, but other States are rapidly falling into line. Idaho, Texas and now California, are getting well organized.

**Honey for the Boys at the Front.**—According to the New Zealand Beekeepers' Journal, honey has been collected for shipment to their boys at the front, under direction of the Red Cross. Approximately five tons were sent, the packing being superintended by Mr. L. Bowman, who was formerly Government Apiarist at Christchurch. Since many of the boys write that they miss the sweets which they have been accustomed to, the honey should prove acceptable.

## Classified Department

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

### BEES AND QUEENS

FOR SALE—About 90 colonies bees at four fine locations, small auto truck and lot of empty hives and supers. J. W. Seay, Lancaster, Texas.

FOR SALE—Three-banded and Golden Italian queens; tested $1.25, select tested $1.50, each. Also 140 hives bees and equipment. If interested, write. C. H. Cobb, Belleville, Ark.

FOR SALE—Bees in 10-framed hives spaced 9 frames to the colony, each $10. F. J. Rettig, Wabash, Ind.

FOR SALE—22 colonies in fine shape for winter, together with supers and extracting equipment. Priced to sell. Goodwin Dahlen, R. 1, Harmony, Minn.

FOR SALE—Three-banded Italian queens; untested, one, $1; six, $5; twelve, $9. Tested queens, $1.50 each. Rob't B. Spicer, Wharton, N. J.

FOR SALE—125 8-frame, one-story colonies, extra fine honey-gathering strain Italian bees, at $6 per colony, all free from disease, with stores for winter, and about 500 extracting supers built from foundation, and some empty supers and extra bottoms and lids, all in first-class condition, at proportionately low price, f. o. b. station. W. C. Meirotto, Council Bluffs, Ia., Route No. 2.

ITALIAN QUEENS—Northern-bred, three-banded, highest grade, select untested, guaranteed, queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, $1; twelve, $10; fifty, $35. Send for circular. J. H. Haughey, Berrien Springs, Mich.

NO MORE QUEENS this season. Root's beekeeers' supplies. A. W. Yates, 3 Chapman St., Hartford, Conn.

FOR SALE—Northern Bred Italian Queens; hardy, prolific goldens, each, $1; six, $5. Allen R. Simmons, Claverack, N. Y.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook, 84 Cortland St., New York City. 1Atf

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50. Garden City Apiaries, San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50. H. G. Dunn, The Willows, San Jose, Calif.

SWARTS GOLDEN QUEENS produce golden bees of the highest qualities; satisfaction guaranteed. Mated $1, 6 for $5; tested $2. D. L. Swarts, Lancaster, O., Rt. 2.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10. 2Atf J. B. Brockwell, Barnetts, Va.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed. O. D. Rivers, Route 4, Honey Grove, Texas.

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease. Wilmer Clarke, Earlville, Madison Co.,N.Y.

FINEST ITALIAN QUEENS, June 1 to November, $1 each; 6 for $5. My circular gives safe methods; free. J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

THREE-Banded and Golden Italian Queens and pound packages from the Sunny Southland. Grant Anderson, Rio Hondo, Texas.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1. J. F. Diemer, Liberty, Mo.

REQUEEN with Simmons's Italians; bred for business. Each, $1; six, $5. Allen R. Simmons, Claverack, N. Y.

### HONEY AND BEESWAX

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section. Charles Israel Bros.' Co., Inc., 486-490 Canal St., New York.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax. E. B. Rosa, Monroe, Wis.

QUICK CASH for comb or extracted. Send sample and say how packed, how much and price. Bruner, 3836 N. Kostner Ave., Chicago.

CASH paid at your bank for carlots and less, of comb and extracted honey.
Wesley Foster, Boulder, Colo.

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

## HONEY LABELS

SEND TODAY for samples of latest Honey Labels. Neat, attractive labels at lowest prices. Catalog free
Liberty Pub. Co.,
Sta. D, Box 4-H, Cleveland, O.

## WANTED

CASH for extracted honey, white and amber, in 10-pound cans.
Thomas Lang,
1572 N. Halsted St., Chicago, Ill.

WANTED—Barnes No. 4 circular saw.
Otto Bender, 2813 Osceola St., St Louis, Mo.

WANTED—A good honey location to start a line of apiaries; will give a suitable reward for the best reliable information.
D. E. Lhommedieu, Colo, Iowa.

WANTED—White sweet clover seed; send sample; state quantity and your lowest price in first letter.
Dadant & Sons, Hamilton, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Second-hand honey extractors; tell me what you have and price; also wax presses.
W. D. Soper, Jackson, Mich.
Dealer in all kinds of Bee Supplies.

WANTED—Samples of honey from the different plants for our office collection. We will pay for the honey and send a parcel post can for mailing. Samples to be of value should be from one kind of flowers only and unmixed with honey from other sources, as nearly as possible. A pint will be sufficient for each kind, but we wish to secure samples of the same kind of honey from several widely separated localities.
American Bee Journal, Hamilton, Ill.

## FOR SALE

FOR SALE—Three hundred, 8-frame extracting supers, painted white, filled with good combs, mostly built on full sheets of foundation, full depth Hoffman frames, seven frames for extracting; no disease, $2; 200 8-frame hives, $2.50.
Chester E. Keister,
Clarno, Wis.

FOR SALE—40,000-lb. car of white extracted clover-alfalfa honey; state best offer, f. o. b. Hardin, Mont., in first letter. Sample if wanted.
S. F. Lawrence, Hardin, Mont.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Price $80 er acre; $7,000 for farm and bees, 150 extracting supers with combs, 100 excluders, 2-frame extractors, 2 large honey tanks, 150 shallow supers. Terms, $3,000 cash, balance on time. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling.
W. M. Penrod, Ronneby, Minn.

FOR SALE—Good second-hand 60-pound cans, two cans to the case, at 60 cents per case f. o. b. Cincinnati. Terms, cash with order.
C. H. W. Weber & Co.

Cowan Extractor, $18; white leghorn cockerels, $1; fox terrier puppies, $2.
Lorenzo Clark, Winona, Minn.

FOR SALE—35 Thale bee feeders, new, $10.
Mason, Mechanic Falls, Maine.

YOU can make your own comb foundation and earn big money making it for others. New, easy, rapid process. Machine and all apparatus complete, with full instructions, $100. Wax worked on shares or for cash.
J. J. Angus, Grand Haven, Mich.

---

# QUEENS THAT WILL PLEASE

**OVER 20 YEARS OF CAREFUL SELECTING AND BREEDING**

**GUARANTEE**

You take no risk in buying my Queens, for I guarantee every Queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction.

They are bred from **Imported** stock. The very best bees for honey gathering and gentleness. They are not given to swarming and are highly resistant to disease. Give me your order and if, after you have given my queens a fair trial, you are not satisfied in every way that they are as good as you have ever used, just return them and I will send you queens to take their places or return your money with any postage you have paid out on returning the queens.

| | 1 | 6 | 12 |
|---|---|---|---|
| Untested | $ .75 | $4.25 | $8.00 |
| Select Untested | 1.00 | 5.00 | 9.00 |
| Tested | 1.50 | 8.75 | 17.00 |
| Select Tested | 2.00 | 11.00 | 20.00 |

Untested, $60 per hundred.

**L. L. FOREHAND : : FORT DEPOSIT, ALA.**

---

# "Practical Queen-Rearing"

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointers in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.

(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

---

# WAR SAVINGS STAMPS DELIVERED TO YOUR HOME

**Tear Out—Fill In—Hand Letter-Carrier—or Mail to Post Office**

TO THE LOCAL POSTMASTER:—Kindly have letter-carrier deliver to me on____________________ (Date) for which I will pay on delivery:

__________ (State number wanted) $5. U. S. WAR-SAVINGS STAMPS at $________ (See prices below) each

__________ (State number wanted) 25c. U. S. THRIFT STAMPS at 25c. each.

Name ______________________________

Address ______________________________

**W.S.S.**
WAR SAVINGS STAMPS
ISSUED BY THE
UNITED STATES
GOVERNMENT

W. S. S. COST DURING 1918

| | | | | | |
|---|---|---|---|---|---|
| April | $4.15 | July | $4.18 | Oct. | $4.21 |
| May | 4.16 | Aug. | 4.19 | Nov. | 4.22 |
| June | 4.17 | Sept. | 4.20 | Dec. | 4 23 |

W. S. S. WORTH $5.00 JANUARY 1. 1923

# Crop Report and Market Condition

Compiled by M. G. Dadant

For our October report we have asked our reporters to write us a brief summary of about the size of crop secured, demand for honey, whether bees will need feeding for winter, condition of honey plants, and honey prices.

### THE HONEY CROP

In the New England States, Maine reports about 40% of last year, with other States reporting about the same as last year, with the exception of Connecticut, which has more honey than in 1917.

In New Jersey, the crop is very small, and New York expects a total of from 50 to 75% of last year. Spots in this State report a full crop, with others much under last year.

Ohio has more honey than in 1917, averaging about 50 pounds per colony for those reporting.

The South is hardly up to last year, though likely up to the average of a five-year period, since last year was above the ordinary. Louisiana is the exception, with very little surplus, with Tennessee about 50% of last year, and Kentucky normal.

Indiana, Illinois, Missouri and Southern Iowa have had near a failure, much of the short crop being due to severe drought, which cut off the white clover in spring and spoiled any chances of a fall crop. With our own bees, we moved 300 colonies from 20 to 35 miles to get them in the Mississippi bottoms to avert a famine. Last examinations reveal that they have filled their brood-chambers well, and may make enough surplus to pay for the haul, which was done by trucks.

Michigan had a poor spring crop, followed by a very good fall flow in some localities. It is certain, however, that the crop will be far below the total of 1917, and one large dealer reports that very little Michigan honey will be sold outside of Michigan.

Wisconsin has had as near a failure as possible. Practically all reports are uniform, except a few in the northern part of the State.

Minnesota's crop is poor, averaging hardly 20 pounds per colony. South Dakota is the same, except in the southeastern part, or sweet clover section, where the crop was fine, as it is in the sweet clover section of western Iowa and eastern Nebraska and Kansas.

Texas will certainly not have over 25% of a crop, but even this will be more than the failure of last season. The irrigated sections of New Mexico and Arizona have had almost a normal crop.

Colorado reports close to normal crop, as do Utah and Wyoming, while the reports from Montana are very good, and from Idaho and Washington, far above last year.

California will have about half a crop.

Taken all in all, the crop will not equal that of 1917, which was below normal.

### FEEDING OF BEES

Roughly speaking, bees will need feeding in all localities where the crop was a complete or near failure this year, and this means some feeding in New Jersey, parts of New York, Indiana, Iowa, Illinois, Wisconsin, parts of Michigan and Minnesota, Louisiana, Texas, Missouri and possibly some in California.

### CONDITION OF PLANTS

The condition of plants varies, especially in the white clover region. Some of the States which show the effects of the drought most are Indiana, Illinois, Wisconsin, Southern Iowa, Missouri and parts of Texas. Copious rains in some parts of these areas have tended to make the outlook a little better for the clover, but conditions are far from roseate.

### HONEY DEMAND AND PRICES

Everywhere, without exception, the demand for honey is extremely good. Many reporters are selling to their local trade at about the same figures that they could get by shipping their honey all in one lump to the larger dealers in the big cities, very likely because they want to hold their local trade and are entirely satisfied with the prices obtained.

Retail prices for honey, the country over, vary from 25 to 50 cents, depending on the container and on the attitude of the seller.

Wholesale prices obtained by the beekeeper vary from 22 to 25 cents for extracted and from $6 to $7 per case for comb, depending on quality and freight rates to the largest terminals. Not a few of the reporters had been offered 25 cents for white extracted, a price for which they had been holding since their honey was ready for market, and several are holding for even a higher price.

It is certain that anyone wanting to sell can get rid of his honey crop at a price of 25 cents f. o. b. Chicago or New York.

To show the hungry demand for honey, we quote from the report of a Missouri correspondent, a big beekeeper who has developed a large local trade and must find honey this year to fill orders. He says:

"The honey prices here are gone plumb crazy, or maybe it is the beekeepers. I am retailing extracted honey for 30 cents could get 40. Six hundred pounds I bought got here September 7—all gone in two days. I have to hide from my old customers; but I will take off 4,000 pounds or more soon, and can then face them again for about five days. After that I will take a little trip, as I can't buy any more. No, I can't take a trip, because we must save gasoline—guess I will buy a rope."

The export demand is still good, and with the present activity all honey will probably be sold and into the hands of the consumer, or the hands of the big buyer and wholesaler by the time Christmas vacation comes.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item**, a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping**, or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## Texas Queens

**No more bees in packages, but queens galore from June 1 to October 1. Untested, 75c each, $8 per doz.; tested, $1.25 each, $12 per doz. I have the Three-banded Italians and Golden Italians; very choice stock.**

GRANT ANDERSON,
**Rio Hondo, Texas.**

## Weis Fibre Containers

### FOR EXTRACTED HONEY

Neat, clean, leak-proof, and inexpensive. Especially adapted for home market.

Send for prices. Samples, postpaid, 15c in stamps.

## M. H. HUNT & SON, Agents

**LANSING, MICHIGAN**

**Don't stop advertising.**
because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.

**American Bee Journal, Hamilton, Illinois**

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

# Attention Eastern Beekeepers

**WE HAVE A COMPLETE STOCK OF**

## Lewis Beeware and Dadant Foundation

We are located on a main line of the New York Central and the West Shore, as well as branches of the Pennsylvania and Erie Railroads; also the Rochester & Syracuse Electric Line, which assures prompt delivery. Parcel Post orders receive prompt attention.

Five and ten-pound pails, also five-gallon cans and glass jars.

Queens, three-banded and Golden Italian, ready for delivery now. Untested, $1 each; 6 for $5.50; 12 for $10; tested, $2; 6 for $10.

Safe delivery guaranteed, dead queens being replaced upon their return.

## THE DEROY TAYLOR CO.

**Newark, New York**

# Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly.

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**No Nuclei or Bees by Pound.**

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

## Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**

**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

**Mr. Beekeeper:**

Increase your honey crop by giving the bees all the super room that they can fill.

We will help you by furnishing you with fixtures ready for use, at the lowest prices.

Hives and supers, nailed and painted; frames, wired and filled with full sheets of foundation; sections, filled with foundation, can be shipped on short notice.

The LEWIS LINE is in the lead with the live honey producers.

**WESTERN HONEY PRODUCERS**
**Wholesale and Retail Distributors**
**SIOUX CITY, IOWA**

**CANS AND SHIPPING CASES**

We have a fine stock of Five-Gallon Cans and Shipping Cases; also Comb Foundation, Extractors, Honey Tanks, etc. Quick shipments.

MADE RIGHT
BEE SUPPLIES
*Quality ... Service*

**THE KRETCHMER MFG. CO.**
**301 Eleventh Avenue**
**Dept. A** **COUNCIL BLUFFS, IOWA**

**LEUTZINGER & LANE**

**Wholesale Dealers and Shippers of**

**Extracted and Comb Honey**

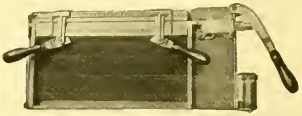
Cor. Drumm and Oregon Sts. SAN FRANCISCO, CALIFORNIA

**Western Beekeepers Attention**

We pay spot cash for Honey, and do not handle on commission. Write us what you have, or expect to have, to sell. We buy any quantity.

Write for Price List and Booklet descriptive of

**HIGH GRADE**
**talian Queens**
**JAY SMITH**
**Route 3**
**Vincennes, Ind.**



PAT. APPLIED FOR

C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

**MOTT'S NORTHERN-BRED ITALIAN QUEENS**

that resist disease well. Those that resist disease must be hardy, prolific, and hustlers; they are gentle. Bees per pound. Plans on "How to Introduce Queens and Increase," 25 cents. List free. Untested $1 each.

**E. E. MOTT, Glenwood, Mich.**

**LIBERTY HONEY LABELS**

have led all others for more than 9 years. Samples will show you why. Our catalog is free. Send for it today—NOW—while you have the address before you. The war has not affected our prices.

Liberty Co., Sta. D, Box 4011, Cleveland, Ohio

**BEE SUPPLIES**

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

**EARLY ORDER DISCOUNTS WILL**

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

# WILL SELL AT WHOLESALE

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF

# BEE SUPPLIES

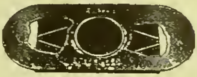
ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers. Send for a price list. **I can save you money.**

**Will take your Beeswax in Trade at Highest Market Price**

## CHAS. MONDENG

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY



**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
Please mention Am. Bee Journal when writing.

# Comb Honey Shipping Cases

**Our shipping cases are all accurately made of nice basswood lumber. This makes a very attractive, neat and strong package.**

Send for our Catalogue.

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

## QUEENS--1918--QUEENS

Goldens only, untested; $1 each, six for $5. Ready for delivery after April 10th. Safe arrival and perfect satisfaction guaranteed.

**R. O. COX**
**R. F. D. No. 4, Greenville, Alabama**

### Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4.25; doz. $8.00 select tested, $1 25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35; 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk. No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

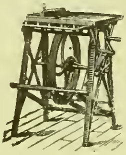
# BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and $8.00; select tested, $1.25.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

# BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# YOUR PRINTING

WINDMILL POWER printed "Gleanings in Bee Culture" forty-five years ago. Now an up-to-date plant with every facility does this work. This plant is at your service. Whether you want books, booklets, circulars, stationery, labels, tags, cartons, tickets or tree-labels, this plant is equipped to do your work promptly and well.

As a trial order, let us print you some letter-heads and envelopes. Or a nice, neat business card with a little carefully selected advertising on it will astonish you with its results.

*Remember:* We have a large stock of cuts of bees, queens, hives and supplies. Also cuts of chickens, rabbits, flowers, apiaries, etc. Send for our sample booklet of cuts today. If interested in honey labels, send for our special honey label catalog at once.

? *Wont you send us a trial order for some printing today* ?

**The A. I. ROOT CO., Medina, O.**

**THIS IS THE "SIGN" ON EACH CYPRESS BOARD**

S C M A

No. of Mill

TRADE MARK REG. U.S. PAT. OFFICE

**DON'T GUESS MAKE SURE. "HAVE A LOOK"**

CYPRESS "THE WOOD ETERNAL"

For all uses that invite decay (for instance, bottoms) demand

**"ALL-HEART"**

***"Tidewater" Cypress***

"THE WOOD ETERNAL"

The "arrow" on the end of each board identifies the genuine product of the cypress mills whose CHARACTER of timber, methods of manufacture, and complete responsibility enable them to be members of the Association.

THIS FACT IS YOUR PROTECTION.

**ACCEPT NONE BUT TRADE-MARKED "TIDEWATER" CYPRESS**

CYPRESS DEFIES DECAY

**SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION**

1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, LET US KNOW

AMERICAN BEE JOURNAL

NOVEMBER, 1918

CORNER OF A KANSAS APIARY

# Ready Money for Your Honey

**SHIP IT NOW**

If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

**PROMPT REMITTANCE**

Remittance sent by return mail for every shipment we receive. Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

**OLD COMBS and CAPPINGS**

Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED---COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

## Our New Home

We are now located at Pearl and Walnut Sts., and have the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

## We Sell Lewis' Beeware

"Lewis" stands for the highest quality Beeware known. It is safe and reliable. "Made like furniture." We are glad to fulfill your needs.

**SEND FOR OUR 1918 BEE CATALOG**

**DADANT'S FAMOUS FOUNDATION**

**ROOT'S SMOKERS and EXTRACTORS**

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
CINCINNATI, OHIO

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price Postpaid $1**

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price Postpaid $1.25**

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price Postpaid $1**

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price Postpaid $1.50**

ALL FOR SALE BY

**AMERICAN BEE JOURNAL**

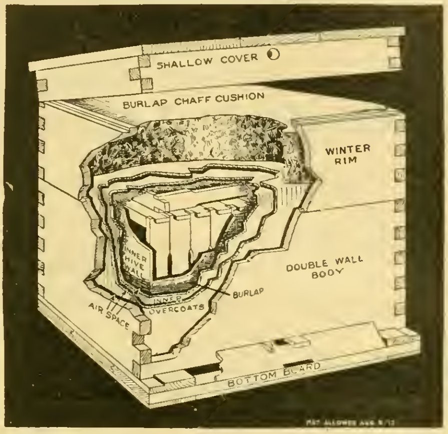
HAMILTON, ILLINOIS

---

# WINTER PROBLEM SOLVED

BY

# THE HIVE WITH AN INNER OVERCOAT



**The Inner Overcoats did it** During the severe winter of 1917-18, there was a little apiary of thirty-seven colonies, near Grand Rapids, Mich. Seven of these swarms were in Protection Hives with the Inner Overcoats, all of which came through in perfect condition and without loss. Thirty of the swarms were in the hives without the Inner Overcoats and they suffered a loss of some 40% to 50%. This was a severe test, as the temperature went as low as 20 degrees below zero, for many weeks. The value of the bees that were lost, had they been saved, would have more than paid for new hives for the entire lot.

Have you ever stopped to think what it would be worth to you to insure your bees against winter losses? The life of a Protection Hive will be at least 25 years. Now figure what the cost will be per year, spread over its life time. You cannot afford to buy anything else. You need a certain amount of protection from cool weather during Spring and Fall. Get away from the winter packing-case nuisance, with all its expense, extra labor and inconvenience. With Protection Hives you have a neat, compact and efficient equipment.

Protection Hives are made of ⅞ material in the outer wall and will last a life time, as they are not permanently packed. The packing in a permanently packed hive, in a comparatively short time, will absorb moisture, become matted down and not occupy more than two-thirds of the space, and will rot out the hive and otherwise get in bad order. When preparing Protection Hives for winter, a piece of burlap is placed over the top of the frames and then two bottomless corrugated paper boxes, Inner Overcoats, are telescoped down over the brood nest, in between the outer and inner hive walls. This provides the burlap with two thicknesses of the corrugated board on the sides and four thicknesses over the top as insulators. They are removed in the Spring, and it takes not over two minutes to insulate a hive for Winter or remove it in the Spring by this method. There are many dead air space compartments in this paper and between it.

Send for a special circular showing 10 large illustrations. It has been necessary to advance prices, but for the next 60 days we will sell from one to five sample complete hives in a place at $5 each.

## TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612.
2½-lb. Friction-Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5 lb. Friction Top Pails in cases of 12.
5 lb. Friction Top Pails in crates of 100.
5 lb. Friction Top Pails in crates of 203.
10 lb. Friction Top Pails in cases of 6.
10 lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60-pound Cans, giving quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

"falcon" **IT MEANS** "falcon"

**Simply This:** We have got to "carry on" with all our might and with more "pep" than ever before. You are urgently requested to prepare to do your part when the time comes to "carry in" the enormous honey crop for which we must prepare.

**PREPARE IN THE RIGHT WAY BY ORDERING EARLY**

This will save time, money and honey, and will be gratifying to your ambition to help your country and fellow citizens. Let them have a good quality of honey and lots of it. **You Can Do It.** Get the goods that you are going to need and have them ready for the beginning of the season. To make this more of a saving to you, we are giving an **early order cash discount of 10% for shipment prior to December 1, 1918.**

**Use only the goods that are tested and known to be the best and most reliable; therefore, "falcon" goods will give the best results. Our goods are made by experienced and interested workers. This is the reason we are known in every land.**

**SEND THAT LIST OF REQUIREMENTS TO US AT ONCE FOR PRICES**

Catalog and "Simplified Beekeeping" on request

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Best Beehives Come From**

**HONEY WANTED**

We are in the market at all times for unlimited quantities of Honey, both comb and extracted. Before selling your crop let us hear from you, quoting your lowest price, either f. o. b. your station or delivered Cincinnati. If extracted, mail sample and state how it is put up. If comb honey, state grade and how packed.

**C. H. W. Weber & Company**

**CINCINNATI, OHIO**

**TENNESSEE-BRED QUEENS**

**46 Years' Experience in Queen-Rearing**

**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested.... | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested.. | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested... ........ ........ | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested...... | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**Capacity of yard, 5000 queens a year**

**Select queen tested for breeding, $5**

**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

**We Offer**

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**

**Glen Cove .. New York**

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

**A BOOK FOR BEGINNERS**

"First Lessons 'n Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# REAL BEE EQUIPMENT

YOU are one of those careful beekeepers who is already figuring on bee supplies for your next year's use so as to avoid the freight congestion later, and also so as to take advantage of any early discounts.

We are in a position to co-operate with you by making *Prompt Shipment* and at *Prices that will Save You Money.*

More than that, you will want the best that you can get for the money. *Real Equipment,* such as we can send you, will not only save you money, but will be a pleasure to use.

## Hives and Supplies

THERE is a big advantage in first-class equipment, something that when put up will stand hauling to your outyards; that will stand the weather when properly painted; in which frames will fit perfectly, and where all hives, supers, etc., are uniform.

If you want to exchange a frame of brood it is a calamity to find that frames will not interchange on account of faulty workmanship.

If you want to move a colony a knot-hole in the bottom-board increases your trouble.

LEWIS HIVES, Supers and Equipment, which we handle, are "Built Like Furniture," with every piece interchangeable.

## Bee Comb Foundation

WE are Comb Foundation Specialists. DADANT'S FOUNDATION is perfected in manufacture to a degree that we feel justified in recommending to you as *the best there is.* In these days of high honey prices, the foundation which is quickest accepted by the bees means extra honey for the beekeeper. Do not lose sight of this point.

## Specialties

TIME SAVERS are money savers. Such items listed in our catalog as Wiring Devices, Electric Wire Imbedders, Swarm Box, Foundation Cutting Box, etc., will save you time—will save you money.

## Bee Books

THIRTY YEARS' experience with several hundred colonies of bees has led us to believe that we can furnish valuable information to the beekeeper. Our books are written with that in view. Some of the books of our own publication are, *'First Lessons in Beekeeping," "A Thousand Answers to Beekeeping Questions," "Practical Queen-Rearing" and "Langstroth on the Honey Bee."*

*Write us for a list of the supplies you wish—We will give you the very lowest prices consistent with first-class goods.*

# DADANT & SONS, Hamilton, Illinois

# MR. BEEKEEPER:

## YOU CAN HELP WIN THE WAR

BY

**ORDERING YOUR BEE SUPPLIES NOW**

BY

**Ordering Standard Goods, so as to enable manufacturing plants to increase production**

BY

**Wintering your Bees with careful attention to their comfort and safety**

Get busy, now, and make up a list of your requirements. A big discount is offered for early orders. Take advantage of prevailing transportation conditions --- later on it may be more difficult to secure prompt shipment. Remember, every pound of Honey produced will release its equivalent of Butter or Sugar for other purposes of food.

**INCREASE YOUR HONEY PRODUCTION**

**THE ITALIANS ARE OUR ALLIES**

**G. B. LEWIS COMPANY**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS U.S.A.
MAKES THE FINEST

**Watertown, Wisconsin**

**ORDER FROM YOUR NEAREST DISTRIBUTOR**

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 11 HAMILTON, ILL., NOVEMBER, 1918 MONTHLY, $1.00 A YEAR

# ADVANTAGES OF LARGE HIVES

## A Discussion of the Principles of Commercial Honey Production

BY C. P. DADANT

THE discussion of this question is called for, following an editorial in Gleanings in Bee Culture for September, 1918, entitled "Bigger Hives and Colonies." The same number of Gleanings bears upon its cover the picture of two Langstroth-Jumbo hives tiered to 6 and 8 stories and kept from tipping over by fence rails, with the legend, "Rails to the Rescue." Readers of the American Bee Journal, knowing that its editors have, for years, been favorable to large brood chambers, asked for articles upon this subject.

Charles Dadant became a supporter of large hives, and a user of them on an extensive scale, as early as 1868. He had, however, noticed the advantage of large brood chambers long before using them. He often related the first intimation he had of the advantage of a large hive body. This was when he purchased bees from a box-hive beekeeper. The man had one hive which had a capacity of about 2 bushels. This was his oldest colony. He refused to sell it. He had owned it for over 30 years, and although no particular care had been taken of it, the same colony had lived for that entire time. Other hives of less capacity had died in winter or had become weakened in bad seasons until they were robbed, or lost by moths, but this had come through numerous trials and bad seasons without mishap.

A similar experience was later given, in the American Bee Journal of April 18, 1883, by Wm. Ashcom, of Ligonier, Pa. He said: "On June 14. 1881, I drove a swarm, for a neighbor, out of a box hive that was 60 years old; it had been put in the box when it was new; and when I drove the swarm, it was so rotten I could hardly handle it; there were cracks and holes from top to bottom; it stood the hard winter of 1880-81, without any protection, and the bees were very strong in numbers when I drove the swarm. That beehive would hold about 2 bushels."

These might be considered accidental instances, were it not that the theory of beekeeping confirms them

When considering the subject of frames and hives, Chas. Dadant had three teachers before him, Debeauvoys as his former teacher in France, and Langstroth and Quinby in the United States. Debeauvoys had used a square frame, about 12x12 inches, and Chas. Dadant followed his methods in this country. This was in 1864. A very short time after, having learned the English language—with which he was totally unacquainted—through the use of newspapers and a pocket dictionary, he read the "Mysteries of Beekeeping" of Quinby, and a little later "The Hive and Honey Bee," of Langstroth.

Moses Quinby, original champion of the large frame

Quinby's hive pleased him best. It was away ahead of the Debeauvoys invention. Besides, Quinby had just been reported, in the "American Agriculturist," as having harvested a crop of 22,000 pounds of fine honey—a rare occurrence at that time—for which he had obtained some 30 cents per pound. This was enough to induce a beginner to follow him.

Quinby, in the book above mentioned, discusses the size of hives and criticizes Bevan, an English author of an earlier date, for recommending a hive of only 1,200 cubic inches. After two pages of considerations, he concludes that the best size for box hives is a capacity of not less than 2,000 cubic inches. Beekeeping was not far enough along, then, for him to recommend the casting aside, entirely, of the box hive.

But when he made his movable-frame hive, Quinby gave it a much larger capacity, 2,925 cubic inches. However, some of this space was taken up by the movable feature of the frames, the bee space all around. But his 8 movable frames, 11¼x18½ inches, outside measure, gave a comb surface of approximately 1,584 square inches, or, for both sides of the comb, 3,168 square inches of cell surface.

The original Langstroth hive, 10-frame, on the other hand, being shallower and shorter, supplied only about 2,800 square inches of comb surface. Nowhere in his book, however, did Langstroth recommend a smaller hive than 10 frames. His experience indicated that ample room was needed. He wrote: "Many hives cannot hold one-quarter of the bees, comb and honey, which, in a good season, may be found in my large hives; while their owners wonder that they obtain so little profit from their bees. **A good swarm of bees, put, in a good season, into a diminutive hive, may be compared to a powerful team of horses harnessed to a baby wagon or a noble fall of water wasted in turning a petty waterwheel."**

These words ought to be inscribed in capital letters on the wall of every bee house, accompanied by this other maxim, which Langstroth called "Oettl's Golden Rule: **Keep your colonies strong.** If you cannot succeed in doing this, the more money you invest in bees, the heavier will be your losses; while, if your colonies are strong you will show that you are a **bee-master,** as well as a beekeeper, and may safely calculate on generous returns from your industrious subjects."

But neither Quinby nor Langstroth gave any hint, in their writings, that they had calculated the space needed by a colony containing a prolific queen. They suggested that much depends on the locality and the season. This is true. But there are first principles to consider, if we wish to get large returns, no matter what locality we live in. The prolificness of the queen is the main criterion, for the measure of hive size.

When a farmer builds a barn he is a poor manager if he does not consider first the number of animals, farm implements and farm produce, that he wishes to shelter in it. Why, then, should the beekeeper neglect to make the same calculation on the necessary capacity of the brood-chamber of his hives?

The requisites of success in beekeeping are all in a strong force of bees **at the time of the honey crop.** As bees live only about 35 to 40 days, on the average, during the summer, the strong force of the colony must be secured quickly and be ready at the height of the harvest. Should the harvest last several months, it would be necessary to continue with a great force of bees until it ends. For that purpose, the necessary room for breeding must be unobstructed by stores. So there must be sufficient capacity for the breeding of the best queens and ample room for surplus. This is one of the reasons why the production of extracted honey is so much greater than that of comb honey.

There are, of course, differences between different breeds of bees as to activity, strength and other qualities of the worker bees. But given the colonies of same breed, the most successful will be the ones with the best queens, if they have room in plenty and a sufficiency of food. It has been said very truly that a queen which is allowed to lay eggs at her utmost capacity for months will wear out or become unfertile in shorter time than a queen whose prolificness has not been put to the test. But a prolific queen, well fed by her bees, as should be the case, will often lose eggs, if they develop faster than she can find cells for them. Queens have been known to lose hundreds of eggs when deprived of cell room for a short time. Loss of eggs, when preparing for the crop, is loss of honey.

L. L. Langstroth, whose original frame has become the standard in America

If our queens wear out faster because of their ability to lay is put to full extension, we need only to replace them oftener. Queens are known to live from 3 to 4 years, occasionally 5. If they are given free space and encouragement to lay, it may be necessary to replace them every two years. Some of our leaders in beekeeping are already recommending this, and a few even advise the annual replacing of the queens. So we might as well use their full powers, and secure the profuse laying at the proper time, so as to have the densest population, in the hive, for the crop.

If two colonies, side by side, with the same opportunities, have queens of so unequal fertility that one will produce only half as much progeny as the other, we must not accept for granted the conclusion that the latter will gather only twice as much honey as the former. All tests and experiments have indicated a much greater difference in results, for the number of bees required at home will be about as great in the one case as in the other and the force of field bees of the stronger colony will be in excess of double that of the other. So success lies, entirely, in the utmost prolificness of the queen at the proper time.

Although Langstroth, like Berlepsch and others, had seen a queen lay eggs at the rate of 6 per minute, he hesitated to give the maximum ability of a queen, suggesting between 2,000 and 3,000 eggs per day. Quinby was a little bolder and placed it at "frequently over 3,000." But is it to be wondered that they should have been timid in making bolder assertions, when such men as Reaumur and others placed the active egg-laying at about 200 eggs? In a similar way, Langstroth hesitated in denying entirely the popular fallacy of the ability of the moths to destroy healthy colonies of bees, though in some parts of his work he gave us proofs that he knew they could not injure strong colonies, since he inaugurated the luminous comparison of the impossibility of a healthy colony of bees being killed by moths versus a similar danger for a healthy cow from carrion flies.

A prolific queen—and we should tolerate no others—often averages over 3,500 eggs per day in the active season. Some experimenters put it at an even higher figure.

By comparative experiments, first with 8-frame Quinby hives—Quinby's standard then 10-frame Langstroth, and Quinby hives up to 16 frames, Chas. Dadant reached the conclusion that 9 or 10 frames, Quinby size, was the best number. But he tried several other styles, in addition to the 12x12 inch frames of the Debeauvoys hive, Americanized, with 14 to 16 frames in a hive. He made experiments on hives with frames 18x18 inches, looking like diminutive barns; also frames shaped as near as possible in the form of a circle, because he had noticed that the bees preferably put their brood in circular shape. It may be interesting to state that these hives proved exceedingly proficient in securing populous colonies. But the difficulty with them was the locating of supers, for which no adequate provision could be made, and they were ultimately discarded. It will therefore be readily understood that his acceptance of 3,500 eggs as the probable average of a prolific queen was not based upon guess, but upon experience. Numerous other apiarists reached similar conclusions, some even placing the possible laying of a queen at 5,000 eggs in 24 hours. Many, however, did not give sufficient weight to the advisability of securing the greatest possible rearing of worker-bees in time for the honey harvest.

The reasoning is that a good hive should accommodate, in its brood-chamber, the breeding of a good queen for 21 days, at least, since it takes 21 days for the developing of the worker from the day the egg is laid to the day of its emerging from the cell. An addition of about 20% of the breeding room is needed for adequate supplies, honey and pollen, for the sustenance of the growing larvæ. This is none too much. Our 8-frame hive beekeepers generally notice that the outer sides of the two outer frames are thus used, besides quite a portion at the upper and rear edges of all the frames. Besides these requirements, some allowance should be made for drone-cells, which are larger than worker cells, 18 to the inch instead of 27, and also for the unavoidable delay caused by the queen not always finding the empty and burnished cells which the workers hasten to prepare for her as soon as empty. Drones are also slower than workers in hatching—24 instead of 21 days. All these matters require consideration.

If we multiply 3,500 by 21 days we find 75,500 as the number of cells actually needed for brood at the height of the breeding season. Adding the 20% for supplies and a reasonable space for the larger cells and the delays above mentioned, we reach a figure of about 90,000 cells. Eight Quinby combs contain approximately 85,500 worker cells, so they are not sufficient. Ten Langstroth combs contain only about 75,600 worker cells, being short about 14,400 of the number required for ample room.

Starting from the above proposition, sustained by experience, Chas. Dadant became the main champion of large hives, in the United States, as he was, in Europe, the leading champion of American ideas on movable frames. But the public did not, by any means, accept his views unanimously. During the year 1885, 9 articles on the subject of "Small versus Large Hives" appeared in the American Bee Journal, mainly from his pen and that of two opponents—Heddon and Hutchinson. Six additional articles appeared in 1889.

To illustrate how much opposition there has been to large brood-chambers, it is sufficient to quote 2 writers. In 1885, page 709, of the American Bee Journal, Franklin P. Stiles wrote that a brood-chamber of from 4 to 7 frames, Langstroth size, was best. This man—if he figured at all—was figuring on a maximum capacity of 1,200 eggs per day for his queens. In 1889, in the May number, B. Taylor, a noted apiarist, asserted that he had a hive of the right size, 1,000 inches of comb surface. This was allowing hardly more than 1,000 cells per day for the capacity of the best queen.

On the other hand, Bertrand, the noted publisher and editor of the "Revue Internationale D'Apiculture," wrote in 1879, that, with small hives, "one quickly has many colonies and quickly very few;" meaning by those words to suggest that small hives swarm much and winter badly.

In 1885, when Langstroth made arrangements with Chas. Dadant for the revision and re-writing of the "Hive and Honey Bee," the question of capacity of hives was fully discussed. Mr. Langstroth said: "If I were to change from the 10-frame hive to any other, I would enlarge it, instead of reducing it." Yet, at that time, the 8-frame hive was very popular. Its popularity has been due partly to its cheapness and its lightness, and partly to the profuse swarming that it causes. Many people want plentiful swarming.

There are, however, successful men who use the 8-frame hive. Wilder, in Georgia, wants no other. He piles them up 2 or 3 high and gets brood or honey, as the case may be, in the different stories. He practices rough-and-ready beekeeping in a country where bees have small value. The Atchleys, years ago, in Southern Texas, wrote that they wanted small colonies for winter, as large colonies consumed too much honey. But large colonies also produce much honey. In the North, a colony is never too strong for winter.

Among the successful 8-frame hive men is our own associate, Dr. Miller. But Dr. Miller gives his prolific queens two hives, or 16 frames, in which to breed. When the honey crop comes, he again reduces them to one 8-frame story for the brood. This requires manipulations which increase the labor at the rush time of the honey crop. Sixteen frames are also beyond the capacity of the best queens. That is another reason for our dislike of such a double hive.

The Jumbo hive, mentioned at the beginning of this dissertation, was the result of a discussion, concerning large hives, in Gleanings in Bee Culture, which was carried on for several years, between 1893 and 1899. The Dadants, of course, held the argument in favor of large hives, with numerous dissenters on the small hive side of the argument. At last, in the May 1st number of 1899, A. N. Draper came to the rescue of the large frame and hive advocates, by giving his comparative experience on hives. Then he quoted the "Hive and Honey Bee" Revision, in which Chas. Dadant wrote: "We would counsel beginners to use a frame as long as the standard Langstroth and as deep as the Quinby." Draper then urged upon the Roots the experiment of making a 10-frame hive of this size. They did so, but instead of calling it, as some of the Europeans do, "the modified Dadant hive," it was called the "Jumbo," on account of its larger size, when compared to the standard Langstroth. The hive is now sold in Europe under the name of "Dadant-Root hive."

The 10-frame Jumbo hive contains over 3,600 inches of comb surface, giving a capacity of over 95,000 worker cells, so that even if a dummy is used in place of one of the frames, it will still have nearly sufficient capacity for the prolific queen. But the principal objection to it comes from beekeepers who use full upper stories and who find these too large for convenience. Indeed, they are very heavy to handle when full of honey. But personally the writer thinks that all full-size upper stories are inconvenient and objectionable, even if only of the shallow 8-frame standard Langstroth size.

After an experience extending over 50 years with several hundred colonies, in both Dadant-Quinby large hives and frames, and 10-frame Langstroth hives of the standard make, the writer is still in favor of a shallower frame for the extracting super. The principal difficulty, with the beekeepers who have used shallow supers, comes from their having used **too shallow** frames, from 4¼ inches deep to 5⅜. There is too much handling in these ultra-shallow stories. The original suggestion of Mr. Langstroth for extracting supers was a 6-inch super. We followed this from the first, using a frame with a 6-inch side bar, a super 6⅝ inches deep. Such a frame permits the use of an uncapping knife in the most practical manner, as a single stroke of the knife takes the entire depth of the comb.

Our objections to full-sized upper stories, after trying a hundred or more of them, in Langstroth hives, are as follows:

1. The addition of a full story to a middling colony gives too much space above, in spring, when the weather is still cool, as it doubles the capacity of the hive at one stroke.
2. The addition of this full-story, to a populous colony which is overflowing its brood-chamber, entices the queen away from the lower story, if the lower story is not sufficient for her laying capacity. So, with 10-frame Langstroth hives, we often find powerful colonies with brood scattered over 2 stories. This is inconvenient if we wish to extract. A deep lower story and shallower upper story tend to retain the queen below. At least this is our experience. We never use queen excluders, considering them a hindrance to ventilation. They are rarely needed, with deep, ample brood-chambers.
3. The addition of full stories, of the depth of the Jumbo frame, increases the objections made to full stories of Langstroth depth, for they are still more cumbersome to handle.
4. Honey in full upper stories is much more difficult to handle in using the extractor and there is much more liability for the combs to break down by the heat.

AMERICAN BEE JOURNAL
Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

| | |
|---|---|
| C. P. DADANT | Editor |
| FRANK C. PELLETT | Associate Editor |
| C. C. MILLER | Questions Department |
| MAURICE G. DADANT | Business Manager |

(Copyright 1918, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

## Our Cover Picture

We are showing a corner of one of the apiaries of Roy Bunger, of Eskridge, Kansas, in our cover picture. Mr. Bunger is a young man who is making commercial honey production an exclusive business. We will have more to say concerning his methods and locality in a future article.

## A New Bee Journal

The first number of a new bee journal from far-off Australia has just reached us. It is known as "Victorian Bee Journal," and is published at Melbourne. It is published by the Victorian Apiarists' Association as a means of disseminating information among its members.

It is a well printed little journal of 12 pages whose monthly visits will be awaited with interest. "Education and Organization" is the slogan of the organization. Long may it prosper.

## An Interesting Source of Loss of Brood

In our October issue Joseph Scott, of Alabama, described a most unusual condition of loss of brood. In this number T. W. Livingstone, of Georgia gives a similar experience, and credits the trouble to the food given the larvæ. We would like more information concerning this trouble, the extent of the area in which it appears, duration of the attacks and other items which will throw light on the nature of the disorder.

## More About Texas

Our Texas series is interrupted from time to time to make room for other matter. There is yet an article about the cotton belt, one about East Texas and one on the inspection system of the State, besides some shorter ones. East Texas is a most interesting section, with wonderful possibilities for commercial honey production. Our readers will be interested in Bankston's method of mating queens with only a few dozen bees in his mating nuclei, and in the fine organization which Prof. Paddock has perfected for fighting bee diseases. Texas is a great State, and offers much of interest for beekeepers. Unfortunately, a part of the photographs taken by the Associate Editor on his trip were spoiled by the photographer to whom they were sent for finishing, so that we are unable to present many interesting things which we would like.

## The Punic Bees and Parthenogenesis

The article from Mr. Baldensperger on the above subject in this number of the Journal calls for some comments upon this bee and the claim made for it.

Mr. Baldensperger is a man of great experience with both Punics and Syrian bees. Therefore his opinion and his reminiscences are of great value. We are ourselves very skeptical upon the possibility of the Punic and South African bees having the capacity of laying eggs that will hatch into the female sex without previous impregnation. The fact that some races of insects have this peculiar ability is hardly sufficient to justify this belief without clear proof. We are under the impression that some females of this race may be so small as to pass for neuters and create the occasion for this wrong conclusion. But we want to be fair, and so we insert the following quotation from the June number of the "Western Province Bee Journal," of Cape Town, South Africa, treating of this subject and, inserted by the editor, Mr. Attridge, without comments:

"We quote from the Journal of the Royal Microscopical Society, the following results:

"Rupert W. Jack, Rhodesian Entomologist, reports on some interesting experiments made by G. W. Onions on the Cape May honeybee. It exhibits a divergence from the European varieties, in as much as a far greater proportion of the workers are apt to develop the habit of laying eggs, which may produce workers, queens or drones, but do mainly produce workers.

"In the Cape worker-bee, probably belonging to the race *unicolor* Var. *intermissa* Latr., the spermatheca is not vestigial, as in the typical worker-bee, but in a nearly spherical body, 0.54 mm. by 0.45 mm. But the laying workers showed no trace of spermatozoa, and the possibility of insemination must be discarded.

"A hive with a strong nucleus of bees was twice thoroughly inspected by Jack and found to be queenless; there was systematic egg-laying on the part of the workers. In many cases several eggs were laid in a cell. The eggs developed into workers, even when the eggs had been laid in drone cells. Later on drones developed from capped cells. From another queenless hive numerous workers and several queens were reared. The possibility of the eggs having been brought in from outside was excluded. The experiments detailed seemed straightforward and careful, and it looks as if Onions had proved his case: that the eggs of laying-workers of the Cape variety of the honeybee produce mainly workers, and that they develop into queens as readily as the fertilized eggs of queen bees."

This matter will be elucidated sooner or later. Possibilities of error should make us very careful. It looks to us as if, the above being true, the fact would have been accepted long ago by expert beekeepers in South Africa and wherever the Punics are cultivated. In Tunis, where eminent modern apiarists have kept bees and taught beekeeping for years (see American Bee Journal, June, 1914, page 204; also October, 1912, pages 294-300), no one has yet recognized anything of this kind. Mr. Baldensperger is decidedly opposed to this so-called discovery. We might add that Mr. Attridge, the editor of the magazine quoted above, published a book of 96 pages, in 1909, entitled "The South African Beekeeper," and in this book mentions laying-worker bees, but states positively that their eggs produce only drones.

However, since there are many insects in which parthenogenesis is carried even farther than in the claims of Hewitt, Onions and Jack, this peculiarity is possible, though undoubtedly not with any variety of European bees.

### Wintering the Bees Successfully

The great majority of our readers live in localities where the question of wintering is a problem. But there are a few essentials which, if they are fulfilled, make the average winter a safe one.

Bees need a sufficiency of good food, not less than 25 pounds. Thirty-five is better. There must be neither fruit juice nor honeydew in the combs. Sugar syrup is much better for them than inferior honey.

The hives should be sheltered from strong winds. If there are flying days, 3 or 4 weeks apart, the bees should be so located that they may take advantage of those flying days. By flying days, we mean days when the thermometer rises to 40 or 50 degrees in the shade.

In localities where there are 2 or 3 months when the bees cannot get a flight, it is usually better to winter in the cellar or in some repository where the aeration will be ample without lowering the temperature of the room below 40 degrees. We have ascertained long ago that bees are quietest at from 40 to 45 degrees. If you are located north of the 42d degree it may be best to winter your bees in such a place. Put them into it at the first severe cold spell and do not remove them till warm days in March or April. The blooming of the first maples is a good indicator.

Be sure and keep a good thermometer in your bee cellar. Watch the temperature at which they are the quietest. Then keep it at that.

Do not attempt to winter weak colonies. It does not pay. Better unite 2 or 3 weak ones into a good colony.

### Queen Excluders Unnecessary

How do the Dadants run for extracted honey without using queen-excluders? If I could get along without them, I would have just that much more to spend for hives and supers. F. P., Millbrook, N. Y.

Queen-excluders are needed only when the queen does not have enough room to breed below, or when she seeks for drone-cells and cannot find them below. Our hives are of the same depth as what is called the Jumbo, 2⅛ inches deeper than the Standard Langstroth. With 9 or 10 frames of that size, a queen usually has sufficient room for all her brood. By repeated tests, we have ascertained that if we put extracting supers full of combs on Langstroth hives, in over half of the cases the queens will lay in the super, unless we use excluders. With the deeper frames in the same number, the queen has enough laying space, so that not over 3 or 4 per cent will ascend into the supers, and these are usually in the hope of finding drone-cells in which to lay, and not for want of room.

So we have been in the habit of using altogether worker combs in the supers, as it discourages the queens from going up into them.

If the queens have ample room, the colony is less apt to swarm. The first honey harvested is placed in the first super. After that, other supers are added above the first, as there is then some distance between the brood chamber and the empty cells, and that space is occupied with honey, there is very little danger of the queen subsequently leaving the brood-chamber.

In our own practice, we have considered the queen-excluder as little better than a nuisance, though we are free to say that the wire excluder is much less objectionable than the old perforated zinc. But if we used the regular Langstroth frame, we would probably need excluders, like the majority of beekeepers.

### The Great Intelligence of Bees

Are bees capable of reasoning? We already know that when we give flour to bees, in boxes, out-of-doors, in early spring, to be used in lieu of pollen, they bring honey from the hive to dilute this flour and knead it into a soft paste that may be loaded in their pollen baskets. But they might do this without previous reasoning. However, here is a statement from Professor Gaston Bonnier of Paris, the author of "Les Nectaires" and president of the "Societe Centrale D'Apiculture" of France. We translate from L'Apiculteur:

"The railroad line of Paris to Lyon passes by my Vegetable Laboratory of Biology, and the Georges De Layens apiary is very close to the railroad tracks. A few nights ago a freight train suffered a collision and a car, loaded with crystalized sugar in coarse grains, being broken in two, all the sugar was scattered on the ballast.

"The following morning the field workers were not slow in discovering it, and its presence was signalled to the divers colonies. Swarming of bees hastened to the open barrels used for sprinkling and to the little basins in which aquatic plants are grown; from thence to the sugar that was spread upon the railroad track.

"From that time on, there was general traffic, from the hives to the water, from the water to the sugar, and from the sugar back to the hives. What a godsend! especially this year, after the failure of the locust bloom and the shortage of nectar in the sweet clover and other wild honey plants. But it was some work to convert this mass of sugar into syrup and to store it in the hives. However, at the end of four days there was not a trace of sugar left, the entire carload had been stored away.

"We must say that the workers displayed extraordinary activity and got up earlier and went to bed later than usual.

'We must say, also, that quite a portion of the sugar was taken away by bipeds, but the latter often desisted in the fear of stings from their competitors, the bees; for many did not know that in such an occurrence the bees do not sting.

"Finally, the latter secured the greater part of the booty, and this unexpected harvest will enable them to keep up their colonies till the blooming of the heather, which is just commencing in the Forest of Fontainebleau."

### Isle of Wight Disease

The British Board of Agriculture and Fisheries has appointed a committee to study the life habits of the honey bee with the object of improving the conditions under which beekeeping is carried on in England and Wales, and to investigate the epidemic diseases of the bee, more especially the disease or group of diseases which pass under the name of "Isle of Wight" disease. The committee consists of: The Master of Christ's College, Cambridge (Dr. A. E. Shipley, F. R. S.); Professor Punnett, F. R. S. professor of genetics, Cambridge); Dr. G. S. Graham Smith, M. D.; Professor G. C. Bourne, F. R. S., D. Sc. (professor of zoology and comparative anatomy, Oxford); Professor W. Somerville (professor of rural economy, Oxford); Mr. T. W. Cowan (chairman of the British Beekeepers' Association); Mr. G. W. Bullamore; Mr. J. C. Bee Mason, and Mr. A. G. L. Rogers (head of the Horticulture Branch, Board of Agriculture and Fisheries). Mr. R. H. Adie will act as secretary. It is proposed to undertake the study of healthy bees at Cambridge and the investigation on Isle of Wight disease at Oxford. The committee would be glad to receive specimens of bees suspected of suffering from "Isle of Wight" disease for examination and experiment.

# BEEKEEPING IN THE ARKANSAS VALLEY

## Notes on an Auto Trip Among Kansas Beekeepers by a Party of Enthusiastic Beemen

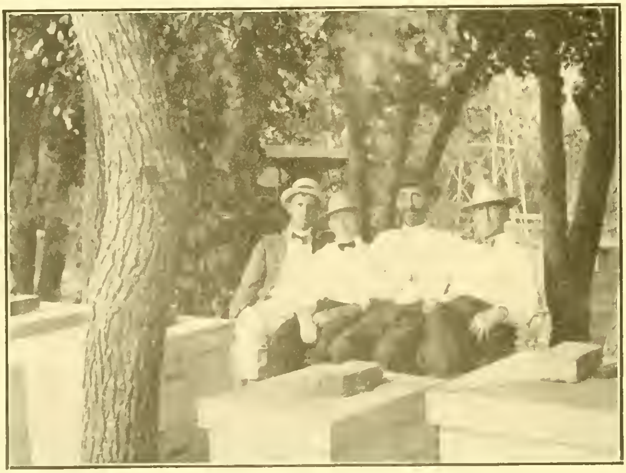
BY FRANK C. PELLETT

GIVEN good roads, a congenial party of beekeepers, a good car and plenty of gasoline, and one could wish for no better vacation. In June, Dr. J. H. Merrill, of the Kansas Agricultural College; Charles D. Mize, President of the Kansas Beekeepers' Association; L. V. Rhine, Deputy Inspector, and the writer made a long drive among the beemen of the Arkansas valley in the vicinity of Wichita, and Hutchinson, Kansas. It was desperately hot, the thermometer registering 110 in the shade, but nobody minded that. The days were spent among the bees, and the evenings in holding miniature conventions in the hotel parlors.

O. J. Jones releasing bees from the package in which they were shipped

The Arkansas valley is especially interesting from a beekeeping standpoint from the fact that entire failure is unknown in this section. Although southern Kansas is subject to frequent droughts, much of the valley is planted to alfalfa, which is sub-irrigated from the river to a sufficient extent to insure a crop. Alfalfa seems to yield honey most dependably where the roots have plenty of moisture and the atmosphere is dry and hot. As much of the valley as is sub-irrigated thus furnishes the ideal condition. In addition, sweet clover has been widely scattered, horsemint is present in abundance, and heartsease adds a dependable flow. With four such honey plants available, it would be hard to find a more desirable field for profitable honey production.

A branch of the State Beekeepers' Association has been formed here, known as the Arkansas Valley Association. The meetings are well attended, and although the total number of commercial honey producers in the valley is not large, as yet, they make up in enthusiasm what they lack in numbers. At Wichita, O. J. Jones is perhaps the most extensive beekeeper. In a discussion of the possibilities of the pound package of bees, he reported that in 1916 he bought 25 one-pound packages. These were hived on full-drawn combs. In addition to filling the ten-frame hives, he sold $190 worth of honey from them, and left the bees in prime condition for winter.



Left to right Dr. J. H. Merrill, L. V. Rhine, E. W. Jewell and C. D. Mize, at the Mize apiary

At Hutchinson, J. A. Nininger is probably the most extensive honey producer, making it an exclusive business. The season in southern Kansas is long. Although there is some severe weather in winter, there are frequent warm days which give the bees ample opportunity for flight, so that outside wintering is the rule. Mr. Nininger reports that his bees begin gathering pollen in February from soft maple, and shortly after from elm. Brood rearing is thus started early, and he is sometimes able to get some surplus honey from fruit bloom. There are some very large orchards near Hutchinson. There is such an abundance of bloom on a full-blown apple tree that it is hard to estimate the possibilities of fruit bloom, if it were only possible to get the bees built up in time to harvest it. Mr. Nininger had some fine honey secured from a 400-acre apple orchard. The honey was of fine quality, mild in flavor and of a light amber color.

Dr. A. D. Raffington is also an extensive honey producer, who is so fortunate as to have a good dental practice in addition. The doctor loves his bees, and would greatly enjoy spending all his time among the hives. He has proved so efficient at the dental work that the business grows instead of diminishing, until his friends find him well nigh in de-

The Jewell apiary at Mt. Hope

spair of getting into the open. Doctor Raffington is one of those genial, whole-souled beekeepers that it is a joy to meet. It is plain that nature intended him to be a beekeeper first.

Raffington reports that his big fall yields are from heartsease, and Nininger has sometimes averaged as high as 50 pounds of comb honey from this source. They usually have about three weeks of flow from horsemint in early summer, with an average of about 35 pounds per colony of surplus. Alfalfa and sweet clover furnish the principal crop. Along the stream there is a variety of such trees as willows, which furnish early pollen and some nectar, as well as fall flowers which add to the total production. False indigo is a common shrub in the river bottom, and yields nectar freely in May.

Mt. Hope is the Mecca of every Kansas beekeeper, for here it is that the popular president of the State Association, C. D. Mize, has his apiary. The site is one of the most attractive for an apiary that the writer has ever seen. A grove shelters it from the wind from the north and west, while furnishing shade from the sun. The hives are set between the big cottonwood trees that grow in a row along the edge of the grove. No photograph can do half justice to the beauty of the apiary. In addition to one long row of hives facing south, there are several short rows facing east. Every hive and fixture is nicely painted, and everything is arranged as neatly as the utensils in the kitchen of a fastidious housewife.

Mr. E. W. Jewell, a local merchant, has an apiary equally neat, although arranged on a different plan. There is a friendly rivalry between the two men, which adds interest to their hobby. Not far from town was a big field of sweet clover which was humming with bees. Our little party greatly admired the luxuriant growth, and envied the two men whose bees were gathering the harvest. At that time the bees were doing nothing over a large area of the middle west, where the entire season has been a failure.

Dr. Bohrer joined the party for a day at Hutchinson. In spite of his more than four score years, Doctor Bohrer is still quite a vigorous young man, and as enthusiastic as ever about bees. It was in the early days of grasshoppers and drought that he came to Kansas and startled the conservative newcomers by planting an orchard. In spite of discouragement, the doctor succeeded in producing both honey and apples in quantity, at the time when it was thought that not much of anything that the settlers had known in their old homes could be grown in Kansas.

With the planting of alfalfa and sweet clover, honey production has become a paying enterprise in this section of Kansas. The rainfall is too uncertain to insure profitable corn crops, but alfalfa has proved the foundation of a profitable general agriculture, which is clearly indicated by the appearance of the homes of the farmers in the valley. More and more of the crop is planted from year to year, so that the stability of beekeeping is constantly improving.

The conditions of northern and eastern Kansas are somewhat different, but these must wait to be told in a future article.

## The Ontario Provincial Aparist

By Morley Pettit

IT is with considerable satisfaction that the former provincial apiarist announces the appointment of a most worthy successor in the person of Dr. B. N. Gates, A. B., A. M., Ph. D., late of the State College of Agriculture, Amherst, Mass.

Born on December 19, 1881, in Worcester, Mass., Burton Noble Gates graduated in Arts from Clark College in his home city in 1905. He took his Master's degree from Clark University the following year and at once began lecturing in beekeeping at the State College. In 1907 he became Apicultural Assistant in the Bureau of Entomology at Washington, D. C., where he remained, doing excellent work under Dr. Phillips, until 1910. In 1909 he prepared a thesis on cluster conditions in winter, for which he was granted the degree of Doctor of Philosophy by Clark University. During this time Dr. Gates' annual course of lectures at Amherst was not interrupted, and in 1910 he resigned his position at Washington to become Assistant Associate Professor of Beekeeping, Apiarist of the Experiment Station and Inspector of Apiaries for the State of Massachusetts.

The beekeeping work of the Massachusetts Agricultural College was started with Dr. Gates' coming to Amherst from Washington. At the same time the inspection of apiaries under the State Board of Agriculture was started, the legislative act having been passed during the session of

The Mize apiary at Mt. Hope

1910. He has been very successful in developing all phases of his work about to the limit to which it can be developed in a State which does not contain very much more beekeeping territory than one of the larger counties of Ontario. He is an active and tireless worker, and, to use his own phrase, he "knows every gate-post in the State."

Dr. Gates is a prominent figure in United States beekeeping, being a past president of the National Beekeeper's Association. Nor is he unknown to Ontario beekeepers, as he has assisted the writer in short courses at the Ontario Agricultural College on different occasions.

When the development of the Pettit apiaries reached the stage that it seemed advisable for me to resign from the provincial work he came first to mind as a desirable successor; but he was not available at that time, and arrangements were made with a recent graduate of the O. A. C., who is doing excellent work in another of the United States colleges, to come on at once and avoid any break in the continuity of the work. The delays of red tape lost us the opportunity, however, and Dr. Gates was approached.

It is understood that he is to be Professor of Apiculture and Provincial Apiarist, and that an option in beekeeping is to be established in the fourth year of the course at the O. A. C. This will enable young men who are beekeepers or who become interested in beekeeping during the first year lectures on this subject to continue the subject during the second and third years and specialize in it for graduation. If this plan is carried out it will put beekeeping on a more equal footing with other branches of agriculture at the college. This is what the writer strove for with but scant recognition during his term of office. Many reforms only come by revolution.

Opportunities for beekeeping specialists were never better anywhere than in Ontario at present. While there is much yet to learn, the knowledge necessary to overcome the three greatest handicaps, swarming, wintering and disease, is available. Henry Ford and good roads have made the management of chains of apiaries under one expert profitable. People are going to try to keep bees. As a war measure, at least, they should keep them. Whether they keep them well and profitably or ill and as a menace to established beekeepers depends largely on the recognition the subject receives at the source of agricultural knowledge.

The new Provincial Apiarist is to commence his duties shortly, and we bespeak for him the hearty co-operation of all with whom he will have to do.

Georgetown, Ont.

If our people were very selfish, they might regret that as good a man as Friend Gates should be induced to take his services across the line. But we cannot be sorry, and there are two reasons for it. First, Canada is so close to us and so fraternal that we cannot realize the difference of government until we meet between us that decadent institution of a more or less prohibitive tariff. The second reason is that if they take good men away from us, we in our turn obtain some excellent workers from across the line; witness the acquisition by the Iowa College at Ames of that excellent teacher, F. Eric Millen. There should be no more jealousy between the States and the Dominion than between our own States. We believe the great majority of our readers will sustain us in this, especially in view of President Wilson's desire of a federation of nations, or as Upton Sinclair suggests, of an "Internation."—Editor.

## The High Prices of Honey in France

From the "Petit Parisien," July 16, 1918

RECENTLY Mr. A. Caillet, Vice-President of the Grocers' Syndicate of France, aroused by the stupendous increase in the price of honey, which has reached, this year, the rates of 735 to 800 francs per kilo., while it sold in 1914 at only 140 to 180 francs, advised the grocers to abstain from purchasing, without having previously called upon these prices the attention of the authorities and requested regulations from the Food Ministry upon the price of honey.

Watering place at Mize apiary

On the other hand, the Prefecture of Police has mentioned this raise of prices to the Minister in charge. But, with the desire of clearing themselves of any suspicion of speculation, the wholesale dealers in honey assert that they are in no way responsible for this advance.

In fact, at their meeting of June last, the beekeepers of Gatinais agreed to double the prices of last year, fixing them at 7 francs per kilo, wholesale. This decision was announced in the columns of "L'Apiculteur." In consequence, the dealers find themselves compelled to sell at an average price of 735 francs per 100 kilos.

But the beekeepers are protesting against the proposal of regulating the price of honey. They assert that there is neither abuse nor speculation in their decision, but only a grievous concourse of circumstances, which render the precious product much more valuable because of the scarcity of sugar. They assert that 60 per cent of the colonies of bees in France have disappeared and that many of the beekeepers of the center will not secure, this year, the half of a normal crop.

They call attention upon the price of labor and ask that the beekeepers of the late draft be given furloughs, like the farmers, since men cannot be found to take their place.

In regard to the consumers, who are the victims of any increase, whether justified or not, they can only make known their dissatisfaction before an increase which prevents people of small means from purchasing the precious product, for sweetening teas or for infant food. They take note of the fact that, while the country people ask 10 francs for their honey, numerous sales have been made in Corsica lately for 5 francs.

(A kilo. is 2.2 pounds. At the regular rates of exchange, 735 francs represents 63½ cents per pound. But European exchange is depreciated, at present, and the war exchange rates would bring the value down to a trifle less than 61 cents per pound. The above clipping from the "Petit Parisien" was sent to us by a French apiarist of note, with the letter which follows.—Editor.)

### Letter of a French Apiarist

"You have probably read in the May-June number of "L'Apiculteur" that the Honey Producers' meeting decided to fix the price of Gatinais honey at 700 francs, and at 600 francs the value of average white honey. In ordinary times, the prices fixed by this association were fictitious, for honey really sold below the prices fixed, but this suited the dealers, who thus appeared to have reduced the price. The Vice-President of the Grocers' Syndicate has asked the State to regulate the price of honey and urged upon the grocers a boycott of the beekeepers. He forgets, of course, that, in 1917, the grocers bought the honey at 250 to

350 francs, and that they sold it for 500 to 700 francs.

The scarcity of honey is, unfortunately, too real, much below the average per colony, with scarcely 40 per cent of the colonies in existence, as compared with 1914. For two years past, it has been impossible to obtain sugar for feeding, and the loss of bees will be greater next winter.

The demand for honey is tremendous, and for that reason, the brimstone-bee-killers, "etouffeurs," will be very active, and will find numerous opportunities to buy colonies; for our country women (paysannes) will sell them the more readily, since prices are high and their many occupations prevent them from caring for their bees. It is therefore certain that colonies will be destroyed by tens of thousands in Brittany, in October and November. If I could have a furlough at that time, I would buy several hundred skeps to strengthen my colonies that have become weakened by want of attention. Skeps will sell at 40 to 50 francs each ($7.30 to $9 in current exchange rates), and they are very small in this region. Unluckily, I will not be at home.

I estimate that the spring of 1919 will open with not over 25 per cent of the colonies existing in 1914, in France. Yet the needs will be greater, as drought has increased the shortage of sugar. At the present time, we are allowed only 500 grammes (1 pound 2 ounces) of sugar per head, per month; how will it be next year? So you may imagine the demand in colonies and swarms. Everyone wants to have one or more hives, to secure a little honey. But it is almost impossible to find chances of purchase. It would be advisable that the State permit the apiarists to resume their work."

The information imparted by the above correspondence is encouraging to American beekeepers. We might add to this that the manager of the "Federazione Api stica Italiana," Mr. Cotini, returned to the stockholders, for the crop of 1917, 640 lire per 100 kilos for their honey. This price, at present exchange rates, would figure $44.61 per 100 pounds.

The demand for bees is extensive, not only in France, but in England, as well as on other parts of the European continent. So it behooves our beekeepers to take the utmost care of their bees and to be ready for the coming season.

But while they are greatly encouraged, the beekeepers must not boost prices too high. Honey has never before been higher than beeswax. It is selling at more than beeswax in some instances. The above shows that there is a demand for regulation of honey prices, in some countries. It is much better to be reasonable in our demands than to find ourselves restrained by government rules. It is to our interest to keep within the bounds of moderation. We must also bear in mind that these extraordinary prices are only temporary, as sooner or later sugar production will bring rates back to normal. The very short crop of the present season, through the entire world, is also responsible for the increase.

---

## Punics and Parthenogensis

By Ph. J. Baldensperger

JUST a little over 27 years ago—I was then living at Jaffa, in Palestine—I read a few very erroneous remarks about our Oriental bees, as well as about Punics or Tunisians; the writer, John Hewitt, of Sheffield, signing "A Hallamshire Beekeeper," to introduce Punics into England, gave them virtues that they do not possess and charged the Orientals, as the scape-goat of Israel, with all sins.

Previously, in 1884, writing of fertile workers in the July 1 number of the British Bee Journal, J. H. said: "If a queen of these new races (Cyprians and Syrians) is removed, in rearing another a lot of fertile workers are also reared, and these begin laying as soon as the young queen, or sooner."

This bad reputation is certainly not founded on any very serious base. We raised hundreds of Cyprians, Syrians and Palestinians, and the fertile workers never troubled us more than did those of their congeners of European races, several years afterwards. Proper beekeeping, under such circumstances, would have been, if not impossible, at least highly disagreeable.

Certainly the Oriental races, having to fight bitter enemies, as hornets, wasps, bee-eating birds (the Merops apiaster) etc., sometimes attacking the colonies in swarms, they are more impatient than brown bees, Ligurians, etc. But this impatience, shown in rapid flight, stinging propensities, liberal use of propolis, wasp-like music, etc., has no influence on their intrinsic characteristics. I had then not yet seen John Hewitt's study on worker-bees, which your correspondent, Mr. John Anderson, M. A., of Scotland, thinks is parallel to the works of Schirach, Huber and Dzierzon (American Bee Journal, 1918, page 192). I noted down a few erroneous remarks of Hewitt, and if his "laying-worker theory," in Punics and Syrians were really well founded, I wonder why he ever dropped it. I noted the strange virtues ascribed to Punics and as I had seen a few of them myself, I put my remarks in a margin and will now give them for what they are worth.

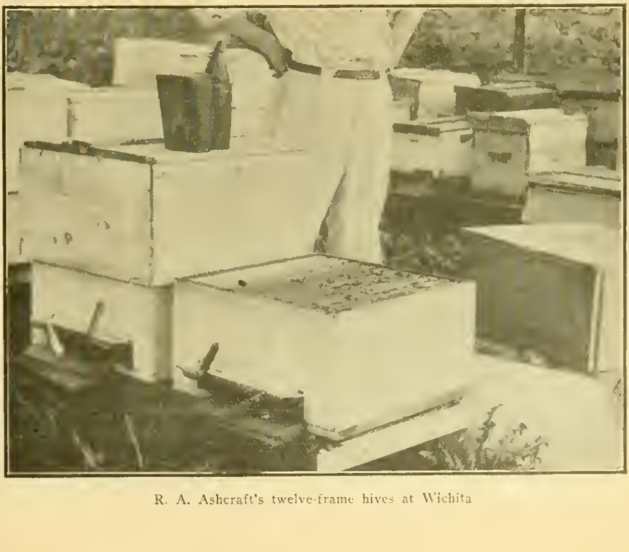
Although Dzierzon studied only European bees, his theory holds good for every race of "apis mellifica or mellifera" and neither Punics nor Syrians have, to my knowledge at least, such a marvelous advantage as to be able to rear workers from a virgin.

John Hewitt, in order to give his Punics a shift, very carelessly propounded their qualities, and no other beekeeper then living seconded his views, or was lucky enough to see his assertions verified.

In the American Bee Journal for May 28, 1891, No. 22, page 701, John Hewitt (Hallamshire Beekeeper) writes about Punics:

### Hewitt's Assertions

1. They are the tamest bees so far known, the only time when it is possible to get them to sting being when they have the swarming fever.
2. In crossing with other races, this docile quality is very marked, not even Cyprian blood being able to make them bad-tempered.
3. They are the hardiest bees known, being able to fly from and return to their hives, with safety with snow on the ground and mercury 30 above zero.
4. They do not fly into the snow like other bees.
5. They begin work at "peep of day"; before the sun rises they are out in full force and have the ground



R. A. Ashcraft's twelve-frame hives at Wichita picked over before the other kinds are on the move. Probably this is the chief reason why they get more honey than any others.

6. If the day is rather dull or cool, they will be working in full force, though no other kind of bees will be flying.

7. The queens are very prolific.

8. In a fair season the smallest nucleus will build up without feeding into a grand colony for winter. So much is this "building" quality present in them that a good, strong colony can be divided into 20 at the end of May and each will build up in a good season, without feeding, into a 10-frame colony well stored for winter, and yield one or two 20-pound supers of honey from the heather.

9. They beat every other kind of bees in their working energies.

10. They live longer than any others.

11. They fill and seal sections fuller and cap them whiter than any other race.

12. For extracted honey they have no equals.

13. They can eat the hardest and driest of sugar; in fact they will carry away the hardest and driest sugar loaf (when no honey is to be had) put under a shed and kept as dry as possible, thus reducing the trouble of summer, spring and winter feeding to a lower point than has ever been considered possible.

14. Although they search out sweets and carry them off anywhere, they are not inclined to rob their hives, honesty being with them a ruling guide or principle.

15. They swarm earlier than any others.

16. They fill cracks or chinks with an enormous quantity of propolis, and if natural supplies fail, nothing sticky comes amiss—bird lime, coal tar, etc. Some may deny that this is a desirable quality, but with it they keep their combs clean and thus make anything do, hives or baskets.

17. They cluster well on their combs, spread evenly over them and shake off readily.

18. They build little drone comb, but plenty of worker comb, as white as snow.

### Baldensperger's Notes

1. The Punics are not quick to sting, but they sting when disturbed, for transferring, etc.

2. A cross with Palestine bees in 1888 made them pretty ugly, not to be compared with pure Palestinians, to be true.

3. Have seen them quiet in North Africa, not a single bee flying at 40 degrees.

4. Have not seen them fly in the snow.

5. They begin work with all the Palestinians, in a honey-flow, at "peep of day," and get no more honey than any others.

6. Our Palestine bees fly for honey, even if it is raining some, and so do the Punics, but they are not superior.

7. Queens are very prolific, as also are the Easterners.

8. In a fair season, a small nucleus will build up, provided there is a honey-flow. This building up does not go very far. My brothers in Algiers could not even double their colonies, though they made efforts. All they could do was to keep their 64 colonies. They had to reduce them to 50 in 1890. I took 195 pounds of extracted honey from one colony of Palestines, 130 pounds orange honey in Jaffa, 65 pounds thyme honey in the mountains of Judea.

9 The foregoing paragraph does not prove it.

10. I cannot say.

11. Have found them poor section builders, as all Easterners, and their section honey appears dirty from their tight cappings, and the propolis smeared on every comb. Tried them from 1892 to 1900.

12. None are better than the Palestines.

13. Have not seen them carry away any loaf.

14. They search out sweets to an alarming extent and rob their neighbors as well as do their Bedouin lords and masters. Honesty is unknown to them in any way, shape or fashion.

15. Possibly they do.

16. Every Eastern race uses propolis to a great extent. In Sarona, a swarm hanging on a tree was almost entirely surrounded with a protecting curtain of propolis.

17. Not as readily as Palestinians.

18. Yes, they are inclined to build less drone combs than Palestinians.

The enormous number of queen-cells mentioned by "A Hallamshire Beekeeper" was not found by me. I abandoned this race. The last colony I had in Palestine built only three or four queen-cells.

As a rule, bees are less liable to sting when they have the swarming fever than at other moments. Tunisians and North Africans do not differ, to my knowledge.

Palestine, Cyprus, Tunisia, Algeria and Southern France, all countries in which I have lived and observed bees during the summers, are not prone to such enormous and continual honey-flows as to permit the development of, say, more than a half dozen colonies in one summer from a single hive, to say nothing of stores for winter.

Nice, France.

## Florida

By T. V. Porter

IN the July and August numbers of the American Bee Journal the editor relates his experience of "A Month in Florida," and prefaces his remarks by saying that "beekeepers who never went to Florida, and never will go there, can be counted by the thousands, so perhaps many of our subscribers will enjoy reading the experiences of a winter month spent in the South." While I belong to the other class, the few that go there, I believe my enjoyment in reading the articles was intensified many fold on that account. The mention of Fargo, Georgia, and the Suwanee river brought to mind the first view that wife and I had of the coastal plain country. We had been traveling all night and stopped for a few minutes in the morning at Fargo, where we could look from the car window into a dense growth of tangled trees draped with long festoons of greenish-gray moss and a large part of the wierd scene reproduced in the mirror-like waters of the song-famed Suwanee river, wife declaring that she could compare it to nothing but her childhood dreams of fairyland.

A day in Jacksonville, as it was then, was enough (it is bone-dry now) and we passed on to St. Augustine. As barefoot school kids we had often gazed at a picture of the old city gate in the geographies of 50 years ago and were intent on seeing it. Having been several weeks on the way, and tired of hotels and restaurants, we went to housekeeping in a modest way, and in buying supplies for the table from a near-by grocer,

T. V Porter and wife in Florida

found some delicious strained honey put up in pint Mason jars with pieces of comb honey inserted. The grocer said, by way of guarantee of quality, that it was produced in his own apiary in the suburbs of the town.

If there is anything more interesting to the average beekeeper than bees, it is the other beekeeper, who, from the peculiar conditions in his locality has adopted a method and practice that would seem to be at wide variance with the orthodox teachings of the text-books, and has made a success of it. I was much interested in this apiary, for it was of the box-hive type, and the owner could give what appeared to be good reasons for the practice. Briefly told, his experience was that he had gone into the business in a small way, using "patent" hives, as all hives other than box are called locally, and that the bees could not protect themselves from the ravages of the caterpillar (presumably the bee-moth.) The result was that he was soon out of the bee business, thoroughly discouraged. On the advice of an extensive and successful Florida beekeeper, he tried again, using the type, or types, of hives shown in the pictures, with success.

The hive standing on end is the parent hive of the yard, kept for increase only. No honey is ever taken from it and it is allowed to swarm without restraint. The horizontal hives are the ones from which the honey crop is harvested or, to use the local term, are "robbed." The method of robbing, which is never done after the month of May, is as follows: The board forming the back end of the hive, and which is but lightly nailed, is taken off and smoke used to drive the bees from the first comb. A shallow square pan is inserted under the comb and with a thin blade the comb is cut from the sides and top of the hive, laid back on the pan and removed. Smoke is used again and the process repeated until the desired amount of honey has been taken, when the back board is replaced and the bees allowed to refill the space with honey. It may be easier to tell the story than to do the work, but it does not look like a very difficult job, after all.

When it comes to low cost of equipment and low upkeep, the box-hive beekeeper certainly has two strong points in his favor, and the reason for so many unkind pen jabs going his way may yet be found in the fact that he never writes for the bee papers.

Harrisville, Pa.

Parent hive kept for increase only

---

## How Co-operative Associations Distribute and Sell

By Richard C. Gano

THE few honey-marketing associations now in existence have not yet advanced to the point where they require more than the simplest form of distributing and selling organization. The Colorado association, the Idaho-Oregon, the Texas group, all maintain a single central office, and the general manager is the man who circularizes the trade, thus finding carload buyers, and who superintends the shipping, which sometimes, as in the case of Colorado, takes place mainly from one central shipping point, and in others takes place from various local shipping points.

Such plans are admirable because of their very simplicity, replacing the more costly and complicated method of selling through numerous commission men or to traveling buyers. It must be remembered that the primary idea behind every co-operative marketing movement is just exactly this simplifying of selling and distributing ,and nothing else. So that to say an association's selling machinery is simple is the highest compliment one can pay it. This very simplicity accounts for the low selling cost—in Colorado around 3 per cent, in Idaho last year 3½ per cent.

But the associations are destined to grow, and this means that their selling and distributing machinery is also destined to grow. Consequently, it may be found interesting to take a little look into the selling and distributing methods of the larger farmers' associations of the country.

The fact of the matter is that there is only one kind of sales organization for perishable products. The honey concern with one central sales office, the cranberry association, with two; the California Fruit Growers', with over fifty—all use exactly the same system, in a broad sense.

The association, large or small, usually finds it desirable to have a personal representative in each big central market to which it sells or wants to sell. The new association may have only its one office for a time, but as business with certain cities becomes heavy it begins to find it wants a man on the spot, to investigate complaints, perhaps to report on condition of shipments coming in, and finally to drum up trade. Circularizing from the central office is excellent, as far as it goes; but where a market presents great possibilities it usually pays to work it intensively with either a salaried salesman devoting his whole time to it, or a broker devoting part time.

This is the way the greatest of all farmers' marketing association systems has gradually grown up. At the start it stationed salaried representatives in New York and Chicago. Today it is represented in every carload market in the United States and in the big central markets of a few foreign countries, and has over 50 distributing and sales offices. The offices in the United States are grouped into six sales divisions, a division sales manager being in charge of each. These offices, some of which have not one but five or six employes, are personally in touch with every carload buyer of citrous fruit in the United States. A typical office staff is that at Chicago, where are the Division Manager, Assistant District Manager, three inspectors and four employes. When this office was first established no one knew about it. The manager had to make himself known by calling on

A small part of the apiary

the local trade and circularizing them. Gradually he secured customers, and many of them became steady customers. Drumming up of trade became less and less necessary. Also, he began to need men to look after his secondary duties for him, when shipments began to be heavy.

These large organizations resemble to some extent the sales organizations built up by private manufacturers. They seem large and costly. They are. But when properly managed they represent vast economies. The California Fruit Growers dispose of their fruit at the same cost as do the Colorado Honey Producers their honey, namely, 3 per cent. Another efficient organization, that of the California Walnut Growers, does its selling through carefully selected brokers, paying them only 1½ per cent commission. They charge their smaller customers 2½ per cent up.

And, finally, this discussion would not be complete without mentioning an independent type of distributing organization which has grown up apart from any special marketing association, and specializes in distributing and selling for farmers' organizations which do not want to build up their own distributing systems. The largest, probably, of these great sales agencies is the North American Fruit Exchange and General Sales Agency. If we should separate the California Fruit Growers' Exchange into its two primary parts, namely, the close-knit organization of farmers in California, and the wide-flung net of salesmen blanketing the country, this second part, the selling part, would resemble the North American Fruit Exchange.

This Exchange will distribute for any farmers' organization whose proposition it can practically handle. It has sales offices in every important market, and these offices sell not one product, as does an office of the American Cranberry Exchange, but many products. One of their products is Skookum Apples, for example. The apple growers of the northwest thought better to affiliate with this Exchange than to build up their own private organization.

It is interesting to learn in this connection that the California Fruit Growers' Exchange is beginning to offer its sales service to one or two other organizations. For several years it has handled the output of a large deciduous fruit association in California, charging a commission just as a broker would. Recently it was stated that negotiations were under way whereby it would also handle the output of a California vegetable association for a limited time. However, it should not be understood that the Exchange is making of its distributing system a separate commercial enterprise. The deciduous fruit proposition just happened to fit in very nicely with citrous fruits and with practically no overhead increase, while other affiliations it may make will usually be found to be for the purpose of keeping its organization busy in what happens to be a dull season.

Investigation into methods of agricultural distribution will reveal many surprising facts which indicate that the old, inefficient methods are passing. The co-operative idea does not always develop spectacularly. Few farmers realize the great extent of co-operative activity in this country, either in successful operation or in process of development. It is a subject every farmer should study—for more and more is co-operation proving its value. The farmer who deprecates the co-operative system may awake some day to find nearly the whole of the industry in which he is engaged pushing forward under co-operative auspices and leaving him behind.

---

## Texas Beekeeping

By C. S. Engle

MOST of the beekeepers in this part of Texas own several hundred to a thousand or more colonies of bees, all of which are probably located in outapiaries. Many of the beekeepers live in the cities and towns and maintain no home apiaries. The larger beekeepers use automobiles in their bee work and it really makes little difference whether they have home apiaries or not. About 50 to 75 colonies are generally kept in each apiary, for it is an easy matter to overstock a locality. The bees gather most of honey and pollen from shrubs and flowers found in uncultivated portions of the country. As some landowners have large tracts of land cleared and put into cultivation, at times the beekeeper is not always sure of a permanent location for his apiary and often has to move his bees to new fields.

One can readily understand that where there are many small apiaries, and the locations uncertain the beekeeper would not be over-anxious to build honey-houses at his apiaries. The honey produced is extracted and bulk comb; section honey is a curiosity.

My outfit for taking honey consists of a two-frame reversible extractor, an uncapping tub, uncapping knife, butcher-knife to cut up the bulk comb honey, pails for handling honey in, honey strainer, cases of pails and cans, a light canvas tent and camp outfit. The camp outfit is a necessity, as my helper and I must stay over night when taking honey, if the apiaries are located many miles from home. This outfit seems small and incomplete to most beekeepers, no doubt, but remember that there are not many colonies at each apiary, and one wants to haul around no more than absolutely necessary.

The tent shown is the coolest one I ever worked in. There is a double flap door in the front of the tent with string for tying it shut. In each corner I use a 6-foot 1x4 to hold up the tent; a small rope runs from knob on top of poles to stakes driven in the ground. In center of the top is a long rope that I throw over a limb and draw top of tent up tight. This does away with a center pole.

For carrying honey into the tent I use what I call a "horse," generally made by nailing four legs to a shallow super and two pieces on the sides about four and a half feet long for handles. On the horse I spread a heavy cloth or burlap sack; then place on top of that an empty super. As fast as the combs of honey are brushed free of bees they are placed in the super and covered with a burlap sack to keep out the bees. Two men can carry two ten-frame full depth supers of honey with case on such a "horse." I find it faster than using a comb bucket or one man carrying a full super at a time, and straining his back, too.

I believe that an outfit such as herein described could be used with profit in many parts of the country other than Southwest Texas.

Beeville, Texas.

C. S. Engle's extracting tent

## Swarm Impulse; Is It Inherited?

By Arthur C. Miller

QUEENS from cells produced under swarming conditions are among the best, but, unfortunately, there is a growing tendency to destroy such cells because someone said that queens produced then inherit the swarming tendency. Each season the statement is repeated without any evidence in support of it. It is merely a part of current beliefs as to heredity and is as erroneous as many others.

If queens produced thus were replaced with equally as good ones, no fault could be found, for the only loss would be the labor of the beekeeper; but the specially reared queens are often inferior, due either to method of production or transportation. The result of the change is a mediocre colony until the queen is superseded. "Supersedure cells" and "swarm cells" are identical; the conditions which produce one are present and operative when the other is produced. It takes but little observation to see the condition of a colony superseding its queen. She is slackening her laying, there is a disproportionate number of nurses to larvæ, and queen matters generally are on the down grade.

At swarming time we find the same relative conditions, only with greater numbers and more food present. In the first instance the failing queen produces the condition. In the second, slackening of the queen is due to temporary exhaustion, or clogging of combs with brood and stores, forces the slackening. In each case the result is the same—queen-cell production.

Swarming by no means follows supersedure during the flow (usual swarming time). Nor does an old queen always resume her full duty in the new home. It is far from unusual for an old queen to be superseded soon after the colony is established in its new home. I have noted five such cases this season. In those instances, swarm impulse followed normal failure of the queen.

I may not have used as many thousands of cells as some of the craft, but I have used a good many since 1880; and I have never yet been able to detect any sign of inheritance of swarm impulse from use of swarm cells.

In recent years I have reduced swarming to between one and two per cent of my colonies, and I have used many queens raised from cells produced in swarming colonies of my own and of other beekeepers.

It is folly to discard fine cells just because they were built by a swarming colony. Don't do it unless you really like to throw away time and money.

Save the cells which you cut from colonies about to swarm, but do not think that by cutting them out you are using the best method of stopping swarming. Of course, if you really enjoy digging through a big colony on a hot day and doing it at intervals for some weeks, and to many colonies, why, go ahead. Far be it for me to interrupt your amusements.

For my own part, I prefer to remove the queen, using her elsewhere, or destroying her, as I think best. Usually I then cut out or destroy all but two cells, leaving two of as nearly the same age as possible. If of the two cells left, one is ready to hatch and one just ready to seal, swarming with the virgin is not unusual. When two cells of nearly the same age are left, one is destroyed soon after the first hatches, but not so when one cell is very young or just started. Do not ask me why—I have a theory, but am busy just now, and it is of no consequence anyway—'tis the fact only which is of importance.

Save the "swarming cells" if the stock is good. The queens will not inherit any swarm impulse.

Providence, R. I.

Collier's can for feeding

## A Good Plan for Filling Feeders

In our picture we show an arrangement in use by the Colliers at Goliad, Texas, for pouring honey directly from a sixty-pound can into the feeders. An extra screw can opening is soldered into one corner of the cans. For use the cap is removed and a special spout, made for the purpose, is screwed on. By loosening the cap at the opposite side to admit the air, the honey or syrup will flow freely from the can. Several cans can thus be fitted up with extra caps and filled with honey. Unless needed for feed they can be used for storage as usual and will be ready for instant use when needed. They are fine for carrying syrup to outyards, since the spout can be put in place on arrival at the apiary and the feeding done without exposing the feed to the bees outside, or the usual difficulty of getting the honey out of a barrel or other container.

## Apiary Building and Equipment

The remarks by Mr. Morley Pettit, on page 152, American Bee Journal for May, instructed me very much, because my thoughts have been persistently traveling along the same groove; but somehow I never got exactly the same deductions.

I want Mr. Pettit to accept my assurance that any remarks I may make are not due to any hypercritical condition of mind on my part, but are actuated by my desire to learn, or to overcome difficulties which I have hitherto been unable to solve to my satisfaction. There are several matters which Friend Pettit and myself do not view through the same spectacles, which I cannot touch upon without making this too long; but I may mention the capping melter. I feel hopelessly old-fashioned with regard to the use of the melter. The orthodox methods are to run the honey straight from the extractor per medium of various heaters, etc., into the jars, ready for market. I have never been able to do this and I fear I never shall. It would be "a consummation sincerely to be wished" to be able to have the cappings go through a melter and be separated into wax and honey without any deterioration of the latter. I know that quite a lot of people, both in Australia and America, claim to be doing this, and it is the fact that I cannot, which makes me feel old-fashioned. I have tried many of these stunts, but I have always been forced to the conclusion that one cannot improve the lily by painting it. Of course, locality counts for a lot—a whole lot more than people generally recognize. For instance, Alexander could do many stunts with bees, due to his peculiar conditions, which are utterly impossible in most other places. There may be peculiarities in the honey which may make the use of the melter feasible with the other fellow, although it is not with me. I wish it were.

I have tried the standard melters and have experimented with various ones which my son, Phil (who has an inventive turn of mind), has made from time to time, but they all darkened the honey, and in most instances utterly spoiled it, in my opinion. There is a delicacy or aroma and flavor about honey which is easily lost if exposed to artificial heat. I am loth to apply heat in any form if it is possible to avoid it. I use a gravitation strainer which has a water jacket, but heat is never applied to this unless the honey is so cold and thick that it will not accommodate the stream from the extractor. I never could get any satisfaction from straining through any material; but I am not at all sure that it was, or is not, due to my want of knowledge on the subject, because I know others who do so and find it "fills the bill." I am beginning to discover (after 30 odd years of beekeeping) how little I know; or, as Josh Billings puts it, "How much that I know is not so."

MAJOR SHALLAD,
S. Woodburn, N. S. Wales, Australia.

## On the Store Room Shelves

By Mary G. Phillips

WHEN the first shivery nights demand an extra blanket on the bed, and we begin to wear clothes that are faintly reminiscent of moth-balls, it is time to think of winter foods. The Food Administration says that enough vegetables and fruits have been canned in American homes this summer to allow most of the commercial output to go to the soldiers. This not only means releasing needed food, but also lessening transportation difficulties, for most of the canned goods purchased for home use has been shipped by train, sometimes all the way across the continent. The motto of most American housewives for the summer, even with the thermometer at 100 degrees, has been

> "Count that day lost whose low descending sun
> Looks down and sees no worthy canning done."

And now they may reap their reward, for the winter meal problem is solved with a cellar stocked with a variety of garden products.

The Food Administrator tells us, however, perhaps in order to keep us from becoming too conceited over our achievement, that our labor in canning has not been sufficient unless in our storerooms we have the equivalent of the following supplies, given for a family of five: There should be for every winter month at least 25 cans of vegetables, 20 cans of fruit, 1½ bushels of potatoes, and half a bushel of other root vegetables. If your shelves can boast of this large a supply then profiteers may howl and retail prices may soar —your family, at least, may live comfortably, and all winter you will have that easy sense that comes only with the accomplishment of a hard task faithfully performed. The thrifty ant and busy bee have their day when the butterfly and grasshopper starve of hunger in the cold. Of course, it has not been possible for every thrifty ant among us to accomplish such results as the Food Administration has pictured, for undoubtedly, although most of us have had gardens, there have been the usual obstacles to perfection—weeds, bugs, drought, and the neighbors' chickens, and some neighbors have more chickens than others. The most fortunate women have been those on the farms where there is always an abundance of every sort of food, and the most unfortunate have been the city dwellers with no gardens, who have had to battle with retail grocers, almost as hard a struggle as that of the farmer against his bug and weed enemies. But, as usual, the law of compensation works, for it has been the farm women who have had least time in which to do their canning, even with an abundance right at hand, while the city women, who have to spend a great amount of time and energy in going from place to place trying to find fruit and vegetables cheap enough to can, have conveniences which make the actual canning quick and easy.

No matter what our winter stock may be, now that it is all on the shelves but a little green tomato pickle, it behooves the ant to be still thrifty, and conserve her supply so that it will surely last through the winter. To some people meals mean meat and potatoes—heavy, fuel-producing foods, and nothing more, but that is as bad a diet for winter as it is for summer. The body needs some fresh fruit or vegetable every day during the winter to give the proper elements of growth, and the essential acids, and it needs as well one of the protective foods each day, that is those foods which assure the body sufficient mineral salts. The following list of protective foods is a good one to memorize or tack up on the wall: Brussels sprouts, cabbage, cauliflower, celery, collards, lettuce, milk, onions, spinach and Swiss chard.

Variety in winter meals is rather difficult unless one looks ahead and plans definitely with that in mind; but when once the plan is made, the greatest bugbear of winter meals is over. Take a sample store-room for illustration, in which everything has been canned from a small home garden, and nothing has been bought to put up. Here are 26 quarts of string beans, 16 quarts of lima beans, 31 quarts of tomatoes, 10 quarts of beets, 6 quarts of kohl rabi, 87 quarts of canned early apples, 12 quarts of peaches, 26 quarts of cherries and 100 jars of jam of various sorts. According to the Food Administration figures, this supply is inadequate indeed for the five winter months for this family of five. The housekeeper has only 89 quarts of canned vegetables, when she should have 150 quarts. She must make good this deficit by buying canned goods from her neighbors if possible, or from the nearest canning center, naturally buying such vegetables as she is without, particularly peas, corn and greens. But leaving out of the question what she must buy, how shall she use what she now has in her cellar? To begin with, the date should be set for the time when she will begin to draw upon the winter supply, Probably November 1 in her locality. If she expects to use from her storeroom until April 1, it gives 20 weeks of winter to provide for. Having 26 quarts of string beans on her shelves, the family may regale themselves with this delicacy once a week with a little leeway for the unexpected and unsuspecting guest, when an extra jar may be opened. With 31 quarts of tomatoes, one can a week may be opened, leaving a quart to be used once in two weeks for soup. With 87 quarts of apples ready to use, think of the desserts! Apple pie one day a week, made with honey, of course; a honey brown betty another night, apple sauce for the children, apple cake—but why enumerate all the delicious things to be made from those 87 quarts. Having only 12 quarts of peaches, they must be opened with care, one every two weeks, probably every other Sunday evening for tea, remembering to invite the minister in the evening those luscious peaches are due. With 26 quarts of cherries there may be cherry cobbler or cherry pie once a week, and the night that comes is the one on which to invite daughter's latest soldier to dinner. It may readily be seen that planning of this sort means a saving of effort, and as there will be constantly a greater demand upon women's time for other work during the coming hardest winter of the war, we must plan ahead and get out of our way as much detail as possible, in order to leave room in our days for the other things needful.

There is a small and easy job on our hands right now, in which every club, every family, every church and every community should be helping —the saving of pits and stones for gas masks. Here is the list of materials needed, and if every mother would see that the collection which goes from her house contains **no other pit or stone,** it will save a tremendous amount of sorting afterward: Peach stones, prune pits, apricot pits, olive pits, date seeds, cherry pits, Brazil nut shells, and the shells of hickory nuts, walnuts and butternuts.

Washington, D. C.

## Notes From German Switzerland

By C. W. Aeppler

IN April, 1918, a census was taken of colonies of bees and beekeepers. It goes to show that the beekeeping industry is on the decline in Switzerland. Switzerland possessed, in

1901—42,257 beekeepers, with 242,544 colonies.
1911—34,351 beekeepers, with 225,030 colonies.
1918—29,460 beekeepers, with 204,128 colonies.

In the last 17 years the number of colonies diminished by 16% and the number of beekeepers by 30%.

Probably for the first time in history has the price of honey to the consumer been fixed by any government. During the past two or three years there has existed considerable speculation on the honey market. In order to put an end to this speculation, the Department of Economics of the Swiss Government fixed the price of honey to the consumer at 6.50 Fr. per kiligram. This is at the rate of 64 cents per pound. Under the stress of high prices during the war the consumer knows in advance what honey will cost him. Possibly such a procedure would be a good thing in Switzerland for all time, but the same would be a debatable proposition, at least during normal times here in the United States. Some of the element of competition would be done away with. There would, however, be some direct benefits. More direct marketing from the producer to the consumer would result. The consumer, knowing the price he would have to pay, might feel more inclined to deal directly with the producer. The beekeeper, on the other hand, would not be subjected to profiteering on the sale of his honey to a jobber. Since the wholesaler must sell at a certain price, it would be easy for the producer to figure out a fair profit for the middle man if he cared to market his honey this way. The beekeeper would receive his share of the pie, whereas at present, in many cases, the middle man gets the biggest share. Even with many kinds of honey to consider, a scale of maximum prices for the various honeys would be a possibility. In the long run the producer would be benefited by a more uniform price over a series of years, and the sharks of the honey market eliminated. Those who are satisfied with a just profit would remain and the friction between the producer and the middleman would be lessened. The plan is at least worthy of consideration.

The Swiss Bee Journal for June says: "Beekeepers, feel concerned about your wax. The time is near at hand when foundation can only be secured by the direct exchange for an equal amount of wax." During the month of May the price of wax increased from 6.50 Fr. to 7.50 Fr. per kilogram; and the price of foundation increased during the same period from 8.50 Fr. to 9.50 Fr. per kilogram. Converted to terms of pounds and our money, the price of wax in May was increased from 64 to 73 cents per pound; and the price of foundation from 83 to 92 cents per pound.

In an article in the July issue of the Swiss Bee Journal, dealing with the chemical analysis of honey, Prof. Dr. H. Kreis states as follows: "If honey is reduced to dryness so that only a residue remains, and this residue is burned, only ash will remain, i. e., a substance, not capable of being burned further, consisting of various bases, such as sodium, potassium, and calcium carbonates, magnesium and iron, which when treated with phosphoric, hydrochloric, nitric or sulphuric acids can be reduced to their respective salts. Honey, therefore, contains the so-called salts of nutrition. However, their quantity content is extraordinarily small; in most cases the ash contains from .1 to 1%. There are also honeys that contain less than .1% in their ash, and the rule can be laid down that the light honeys contain less ash than the dark honeys."

Oconomowoc, Wis.

### The Illinois Meeting

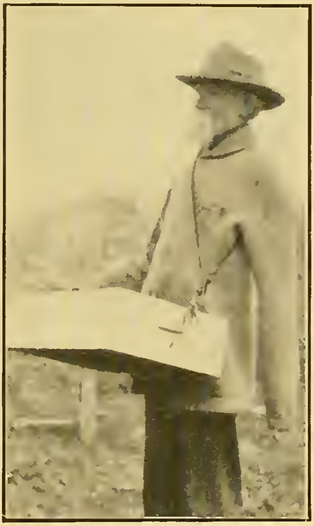
The Illinois convention is postponed, owing to the influenza prevailing at the time this was written.

Mrs. Jas. A. Stone, wife of the worthy secretary, died October 17, of pneumonia, following the attack of this trouble. Mr. Stone has the sympathy of the fraternity in his sorrow.

### New York State Association

The New York State Association of Beekeepers' Societies will be held in Buffalo, N. Y., on December 3 and 4. All beekeepers are invited to attend.

# BEE MEN WORTH KNOWING ABOUT



John Donnegan, a beekeeper in spite of a handicap

Chas. D. Mize

### A Texas Veteran

John Donnegan, of Seguin, Texas, is one of those delightful southern gentlemen who make you feel that it would be a joy to know more intimately. In spite of a handicap which would discourage the ordinary man, he has been a successful beekeeper for these many years. The photograph shows the ingenious manner in which he is able to handle hives and supers with one hand. At the corner of each one he has placed a screw-eye in which he can fasten the snap at the end of the strap hanging across his shoulder. The strap thus takes the place of one hand very nicely.

Mr. Donnegan is a well-known figure at Seguin, having held public office for a long time.

### Annual Picnic

The annual picnic of the South Minnesota and Western Wisconsin Beekeepers' Association was held this year on August 21, at the home of one of the members, Mr. E. N. Cady, Lewiston, Winona County, Minn. The social side of these meetings, we think, is of as much value as the benefit derived from the bee talks and demonstrations.

The first item of each of these picnics for the past three seasons has been that the "host" member explains his methods of handling his bees for a complete year. Discussion follows that with a carefully prepared program. L. V. FRANCE.

### A Gentleman From Kansas

No, we have not been hearing much about Kansas beekeeping until recently, but just the same Kansas beekeepers have been busy bringing home the honey. The time was when Kansas was chiefly famous for dry weather and grasshoppers, but of late they are producing as much alfalfa, wheat, and as many apples as the next one. Now Kansas is coming into the limelight as a honey-producing State.

Charles D. Mize is the President of the Kansas Beekeepers' Association. He has a very fine apiary down at Mt. Hope, in the Arkansas Valley, where he gets about 100 pounds per colony of surplus, one year with another. He became interested in bees in his boyhood back in old Kentucky and his interest has grown with the years. It is safe to say that Mr. Mize would miss his dinner to meet a red-blooded beekeeper who could tell him something new about bees.

Professionally he is engaged as a field agent for a financial concern with headquarters in Topeka, but there is no more practical honey producer in the State of Kansas. He gives without stint of his time for the success of the Beekeepers' Association and is enthusiastic in support of every movement aimed at the advancement of beekeeping.

# BEE-KEEPING FOR WOMEN

**Conducted by Miss Emma M. Wilson, Marengo, Ill.**

When Dr. Miller began beekeeping he first produced comb honey in boxes containing 4 or 5 pounds, the boxes having two sides of glass, some of them four. When the honey extractor was invented he got one of the first that was made in the country. It was a Peabody, took two combs, can and all revolving together, and it was not the easiest work to turn it, for one had to stand bent over, with the constant danger of being cut by the tin tops of the pockets as they revolved. Then sections were invented, and he returned to comb honey, for a great many years taking pride in producing the finest grade of section honey.

Some three or four years ago, with an up-to-date extractor, he produced part of his crop in the extracted form. This was not because he thought extracted more profitable than comb. It was not because Uncle Sam urged extracting; that was a thing that came afterward. One reason was that he wanted to know how the work of the two kinds of honey would compare; and he also wanted to learn something about producing extracted in a somewhat modern way. Perhaps a stronger reason was that he believed it to be more for the general good to produce honey in the extracted form, since more would be produced in that form, hence more eaten, and the more eaten the better for the health of the general public.

The 5-pound friction-top pail was adopted as the sole container. Just exactly why it might not be easy to say. Perhaps that size would accommodate the greater number of consumers, and it would be less trouble to have only one size than to have different sizes to suit different customers.

What about the honey granulating? Consumers "in this locality" had been accustomed to comb honey, and might not take kindly to the candied article. Should the honey be taken back and liquefied, as is the custom of some? That would be a lot of trouble. Should a campaign be undertaken, as some have done, to educate the public to use candied honey, and if so, how should that campaign be conducted? It was decided to do neither, but to let the honey stand on its own merits, with no attempt at educating the public except with what education there might be in the label, which reads:—well, first what it doesn't read. It doesn't read anything about the honey being pure, and $100 being paid for proof of adulteration. All that might be said about its purity is taken for granted, and there is no suggestion that anyone might think of adulteration in the case. Here, however, is what is found on the label:

HONEY
From the Apiary of
C. C. MILLER
Marengo, Ill.

The candying of honey is the best proof of purity. This honey will candy during cold weather. To liquefy candied honey, put the pail in hot water. Do not let the water boil.

It may seem a little strange, but it is the truth, that never in a single instance has a word of fault been found as to granulation, so far as we know. Conditions are at present unusual, but whatever the reason, extracted honey seems more popular than did ever section honey.

Members of the firm of Sires and Sires

### Honey in War Time

Honey has always, until late years, been counted a luxury, especially in the west. We may send out recipe books, or write about the use of honey and it seems all to be Greek to the public. I have found out that you must get right among the housewives. I had the pleasure not long ago of meeting one of the northern Idaho ladies (Miss Davis) who was on the Food conservation committee, and was giving us a talk at Sand Point, Idaho, on conserving food. But very little was said about honey, as she had not used it very much herself. She advocated everyone having a hive of bees, but could not tell us how to use the honey after getting it. So I was asked to give a demonstration on cooking with honey, which I was glad to give. I made a display of the fruits and jelly (also opened up some for the ladies to sample), which I found a very satisfactory way. You would be surprised how little they knew and yet so eager to learn the use of honey, even the demonstrator sent out by the government said she had not come across anyone that could tell her much about it. So, as honey producers and honey users, it behooves us to get busy. Honey at one time was counted as a luxury, but not so now. We are at war, and it is not a matter of dollars and cents, but how can we help win the war. While there are "Corn Meal Books," "Oat Meal Books" and other substitute books going out, what are we doing? This is a new thing, and it is up to us women who have used the honey, to tell what we know. We use about $1 worth of sugar in 12 months and Mr. Sires is very fond of sweets. I can all my fruit, make jelly, jams, sweet pickles (for I make honey vinegar), and sweeten all my pastry with honey. Now that they are having so much cooking done in the schools, there is no better chance than to offer your services there and have a demonstration day. You will be surprised how many mothers and sisters will come out. It is a poor business that is not worth talking about.

We have two large windows facing the street. We have a display of honey cookies on hand to sweeten the palate. We find it a good way to advertise. When I go to the Red Cross I take my lunch and with it a small bottle of honey, cookies, barley cake or something that I can pass around, and at the noon hour give the folks a treat.

MRS. ARTHUR SIRES,
Wapato, Wash.

### The National

The National Beekeepers' Association will hold its next convention in Chicago, Ill., February 18, 19 and 20, 1919.

I have waited, expecting to have part of the program in shape, but correspondents have been rather slow in answering my letters, so will have to announce it later.

FLOYD MARKHAM,
Secretary-Treasurer.

The Pennsylvania Beekeepers at the Sterner apiary

### The Pennsylvania Field Meet

The Pennsylvania Beekeepers' Association held a summer field meeting at the apiary of Dr. E. E. Sterner at Wrightsville, July 6. Dr. Sterner, Dr. H. A. Surface and Prof. Rambo were the speakers of the day.

### Michigan Convention Notes

The annual meeting of the Michigan Beekeepers' Association, which will be held at Lansing November 19, 20 and 21, promises to be one of the best of good times and one of the most profitable meetings of Michigan beekeepers in recent years. The present indications are that all the previous records of attendance will be broken. Practically all county associations will send delegations of considerable numbers. This will be one of the rare opportunities for beekeepers to talk with some of the most successful men in the business and learn many of the secrets of their success. The discussions, as appearing on the program, will center around the subjects of the proper size of hives for best results, the use of combless packages, modern methods of marketing with special reference to the possibilities of a producers' co-operative organization and the honey-producing possibilities of the Upper Peninsula. The most of the program will be in the hands of Michigan men. Mr. C. P. Dadant, of the American Bee Journal, and Mr. E. R. Root, of Gleanings, have consented to be present and give Michigan beekeepers the benefit of their very broad and valuable experience. A banquet will be held on the evening of the 20th. Plan to sidetrack everything and join with your fellow producers in having a most enjoyable and profitable time. If you have not received a program by the time you read this, send to the undersigned for one. B. F. KINDIG,

East Lansing, Mich.

### Simple Method of Rearing Queens

Take a new, fresh sheet of medium brood foundation, secure this in a brood frame and place this in the center of the brood chamber by removing one of the outside frames that usually contain no brood; then move the frames out, leaving a space in the center for the new frame. When this is drawn out and filled with eggs remove to a warm room if the weather is a bit chilly, and cut in strips by running a sharp, slightly heated knife through one line of cells, then skip one line and cut through the third line of cells. This will give you one row of cells not molested. Cut off the cells on the opposite side one-sixteenth of an inch from the foundation; have previously arranged a frame with two or three cross-bars; secure the strips of cells to the under side of these bars in such a position that the cells will joint down when your frame is placed in the hive, when the bees will do the rest, giving you a fine lot of queen-cells which, when capped over, may be used according to methods described in various works on this subject. If it is desired to use both sides of the comb, take two sheets of foundation, place these together with two sheets of tissue paper between them, cutting the paper a little smaller than the foundation and pressing the edges together. By trimming the edges these two sheets will readily part, giving you two sheets drawn on one side, or twice as many available cells.

A. CHENOWETH,
Stewart, Nebr.

### Foulbrood—Swarm Control, Etc.

I have had American foulbrood and am now sure that my colonies are free from it. American foulbrood is much similar in its actions to hog cholera, which I have had on my farm twice during the last year. A few may get well—most of them will die. A few will be immune or will not contract the disease. I have had two colonies to become less and less until no more dead brood would be found. I have never found a badly affected colony to be able to throw off the disease unless treated by the regular plan given in past numbers of the American Bee Journal.

I have taken queens from badly infected colonies and introduced them in other colonies and never had the queens to carry the disease.

Practically all the bees died in this locality during the last ten years.

The last two years the bees have become as plentiful as ever. I believe that the immune or resistent strains have survived.

The plan of hiving several swarms together has not been a success with me. They swarm again or loaf with an abundance of room. And along with the above to let old queens go back to old stand after hiving bees with other colonies has been a failure with me. The old queens disappear.

The method of continual destruction of cells was a fizzle, also. In time I had bees with no brood, frequently with old queens present, but no brood of any age. I had to give these colonies cells in order to raise queens.

I was disappointed in giving a strong colony but one cell. Frequently that one young queen took practically all the bees and left without leaving their future address, with a queenless hive and few bees left behind.

I have had several queens of this year's raising to swarm and make their get-away. I find that certain strains of bees do not swarm as readily as others. They gather more honey. I have had one queen to be laying in three days after she came from the cell. I opened the hive immediately after the second swarm had issued in order to get some young queens. I found the bees holding several queens in their cells. I brushed the bees off a cell and out came the queens, and I put them in another hive that had cells. In three days there were fresh eggs. The weather had been very rainy before this swarm issued.

Most of the queens begin laying before they are ten days old, but frequently it will be two weeks, especially if there is no honey coming in and conditions are unfavorable.

The above conclusions have been from the handling of powerful colonies—from 10 to 18 frames of brood before white clover harvest,

JNO. M. BIXLER,
Corning, Iowa.

### More About the Loss of Brood in the South

Noticing the article on "Losses in Southern Beekeeping," page 344, by Joseph C. Scott, Mt. Pleasant, Ala., in which he describes a brood disease which I think is the same that I have known for a long time, I thought it well to give my experience with it. While I lived at Leslie, Sumpter County, I noticed it about the same time of year and about every year, with appearance much the same as he describes. With me the first appearance of it was the purplish color of all the unsealed larvæ. Some of it would die and then turn white and, if not removed by the bees, would finally turn black, and in bad cases the comb would have all the appearance of pictures of foulbrood we have often seen in the bee papers. When the cotton began to yield honey the disease usually disappeared rapidly, so that I never experienced much loss from it while I kept bees in that locality. Since removing my bees to this place, less than a year ago, it has been a more serious matter with me the past summer than it ever was before. Many of my colonies were badly weakened by it, a few swarming out and leaving lots of brood and some honey, and others dwindling and dying out. It continued longer this year than I ever knew it to do before and seemed to affect the adult bees, too, as some pretty fair colonies would get very "mothy," and I had to take their combs from them or lose them. I don't think that it is a specific disease like foulbrood, but that it is caused by the food partaken of by the bees. I do not pretend to know what it is, but would suggest that it may be caused by the juice of fermenting, rotting fruit, probably blackberries, as it always appears while such are to be had, and at no other time—at least in my experience. I suppose it was made worse with me this year by the failure of the early crop and the general scarcity of good forage at the time of its usual recurrence. I am sorry that I can see no practical remedy for it, but do not think it has been very serious in this region heretofore, and perhaps will not be again for many years.

T. W. LIVINGSTON,
Norman Park, Ga.

### The Iowa Convention

We have received word from President Millen that they are expecting a "Best Ever" time at Des Moines on November 6 and 7. They expect Prof. Morley Pettit, formerly Provincial Apiarist of Ontario, to be present and give an illustrated lecture on "Beekeeping in Canada." It is expected that many middle west beekeepers will avail themselves of this opportunity to see and hear Mr. Pettit. The complete program has not yet been announced, but we are advised that it will be up to the usual Iowa standard. It is expected that a visit to Camp Dodge and to the Mid-west Horticultural Exposition will be a feature of the convention. Since so many have relatives at the camp and the meeting coming at the same time as the Horticultural Exposition, it is expected that the attendance will be large.

### Report From Missouri

This is fine location for bees, except for considerable foulbrood. There is about 5,000 acres of bearing apple orchards, perhaps 200 acres of peaches, 500 acres strawberries, some acres of raspberries and blackberries; also cherry orchards, quite a few acres of sweet clover and white clover. Our greatest drawback is that nearly every fruit man has some Inghram apple trees scattered promiscuously about in his orchard, and they bloom about 10 days after other varieties, and as the spray applied to orchard after petals fall on other varieties finds the Inghram in full bloom and many of them carelessly spray all at once, thus filling the Inghram blossoms that are full of bees, with a strong arsenate spray and killing the bees by the thousands just when they are needed so badly to build up for raspberry and white clover.

I have very little trouble keeping down the foulbrood, but we are never safe from it, as this is a timber country of many large hollow trees.

The beemoth is at its best here and is a blessing, as it soon cleans up the badly diseased colonies.

I. E. JOHNSON,
Marionville, Mo.

### California Conditions

It has evidently started in to be a great year next year, to put it in that way. Early last week we had our first rain—there were full two days of it and it did not stop until we had some four inches of it hereabouts, and diminishing quantities in various other portions of the State. It was the earliest rain that I know of in California—and it was far the heaviest. It usually rains by the end of September; the 28th seems to be the fortunate date for the first precipitation.

Of course, such a heavy rain did much damage to uncovered hay and grain, but prunes and grapes in the drying districts are the heaviest sufferers. Millions of dollars worth of these fruits are ruined. Wine grapes will not suffer so badly, though I suppose the quality will be lowered by the excessive moisture.

The tomato crop is badly damaged—that is, the ripe and ripening crop. The green fruit has yet many months of warm weather before the November or December frosts put the plants out of commission. I have seen tomatoes in full swing hereabouts away off into January. Nearly all other vegetables except, perhaps, ripening beans, will be benefited by the aforesaid rain.

And the bees, what a boon it has been to them! And it is for this reason that I stated in the opening sentence of this letter that "next year is to be a great year." Two years of dry weather had a bad effect on vegetation; some plants made little or no growth. The rain coming so copiously at so early a time, will cause many plants to start into growth and become strong for the next season's flowering period. At any rate, the root-systems will have ample opportunity to expand and be ready for vigorous "nectar-campaigning" next spring and summer.

The annual crop of honey-secreting flowers will get an early start and be benefited in a two-fold ration. Take, for instance, the alfilaria or pin weed class; we have two varieties that are invaluable to the apiarist. In two or three days after the early rains the seeds of these plants sprout, and I believe there is no other plant that comes to its season of inflorescence so soon after coming up as does this plant, botanically called *Erodium*. It is not a native of California, as many residents suppose. Its native habitat is the European shore of the Mediterranean Sea, mostly, I believe, in Spain. It was brought to this country, as near as can be learned, in the wool of sheep imported from Spain by the early settlers of what is now the southwestern portion of the United States.

In moist places alfilaria may be found in bloom the year around, but it expands its petals in early winter and into summer if the season is propitious, as it surely will be from now on. It is an abundant yielder of nectar, which is largely used in brood-rearing, as it comes at the proper season

Bees kept in the neighborhood of places where fruit is spoiling from the effects of the unusual rains, will be apt to unduly concentrate their foraging propensities upon its juice and in consequence store up food which will cause mortality among the bees. And so it behooves the apiarist, whose bees gather such stores, to deprive them of the combs containing them.

These days my bees may be merrily bringing in nectar in fair amounts, largely from *Eucalyptus viminalis*. There are many flowers in bloom in the gardens throughout the city of Berkeley on the north of me, and in the city of Oakland on the west and south, while off on the east the hills begin, on which wild flowers are in bloom, the most numerous being wild buckwheat. But the fall flowerage is

Annual picnic of East Minnesota and West Wisconsin Beekeepers' Association never a dependable quality with us; this fall it will be better than usual, owing, I am sure, to the aforesaid unusual rain.

W. A. PRYALL, Oakland, Calif.
September 20, 1918.

### The California Short Courses

The University of California, in cooperation with the Bureau of Entomology of the United States Department of Agriculture, will hold a series of four short courses in apiculture, from November 25 to December 21. The object of this series is not to induce a lot of new people to take up beekeeping, although, of course, beginners will not be discouraged. It is rather designed to bring the commercial honey producers of the State together for consideration of the scientific aspects of the business of honey production. The program is extensive and includes much concerning the fundamentals of bee behavior in addition to the usual practical applications. Several beekeepers have been invited to assist the University and Department officials in the conduct of the courses.

The dates and places are:

San Diego, November 25 to November 30, 1918.

Davis, December 2 to December 7.

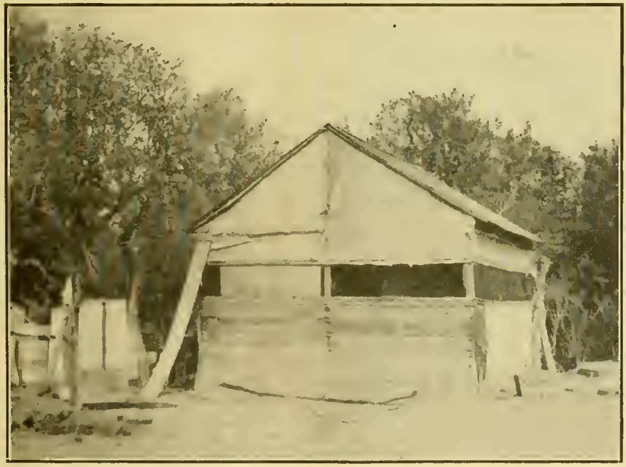
Visalia, December 9 to December 14.

Riverside, December 16 to December 21.

Those interested will do well to write to Prof. G. A. Coleman, Berkeley, Calif., for a complete program.

### A Ventilated Honey House

George Schmidt, of Crystal City, Texas, has a very ingenious plan of ventilating his honey house and at the same time attracting the bees away from the door in extracting time. He has a belt of wire screen about three feet wide entirely around the building as shown in the picture. This makes the building cool in hot weather and at the same time serves to prevent the bees bothering about the door while honey is being extracted. Beekeepers who have occasion to extract during a dearth in the honeyflow have no need to be told that the bees become very annoying at such times in their efforts to get into the building. With this large amount of screened surface those attracted to the building and scattered over a wide surface do not congregate in such numbers about the door. The average honey house is a very hot place to work in midsummer, and this plan, once tried, is likely to prove popular.


A ventilated honey house

### A Wizard's Secret

A few years ago, on a June afternoon, I was going to Vouvry, a neighboring village.

On the way, I heard my name called by an old woman, who was popularly nicknamed "hyena," and looked like one.

"Ho! Louis; I have a swarm out and it has settled in the brush. I can't reach it. Come and see."

As any lover of bees might do, I followed her. The swarm was settled in small lumps on a number of leaves of nettles and thorny bushes. What to do? A hive, shaped like a coffin, had been brought, and I began to cut the leaves around it with a pair of shears. But all at once, I noticed the queen, gravely walking about on top of a small group of bees: I cut down the stem, and at once introduced those few bees into the hive. This was quickly done. But the thought came to me to play a joke on the old woman.

"I cannot get those bees in," said I. "The only thing that will bring them is a 'secret.' Turning my back upon her, I took down my hat and made in it a number of cabalistic signs, while pronouncing a few words in unintelligible language.

She was watching me with a great deal of concern, out of the corner of one eye. I placed my hat back on my head and said: "You did not look?" "Na," said she. "Well, let the secret work out."

After 20 minutes we came back to the swarm, carefully, silently. Oh, what a miracle! The bees were roaring at the entrance, fanning it with their wings. And the fearless unbelieving old woman exclaimed in wonder: "If you ain't a wizard, there ain't none!" L. REY.
(Bulletin D'Apiculture), Switzerland.

### Bees at the Front

We are very much interested in your journal and after I have studied it it is sent to my son in France, who is an enthusiast where bees are concerned. He secured a swarm which was found attached to the wire entanglements, and it has come through some trying times. When discovered, he had nothing to hive them in, but went to a Y. M. C. A. hut, where he got a large empty case and a sack. While away he found some soldiers had been throwing stones at the swarm, causing it to be divided into three parts. However, he managed to gather them together onto the sack, thence into the packing case. This case being too large, he had afterwards to get a smaller one, and fix up some frames with what material he could find around, and they have lived through the winter. In the early spring the Chinamen had been at it and upset the hive and had broken the combs for the honey. Fortunately he was able to visit them soon after and found the queen on the ground alive, placed her in the case again along with what bees he could secure and fixed up the combs as best he could. He writes me that after all the mishaps they have done remarkably well, though they never swarmed. J. FYFE,
Stirlingshire, Scotland.

### Fermenting Honey

I had some 30 colonies of bees on an island this summer for the mangrove bloom and one hive stored one super of honey and when I went over them to give them room the honey smelled strong and was fermenting in the combs, so I put the cover back on the hive and left it just as it was for eight or nine weeks, waiting for the bees to seal it up, but they have not done so yet. It is still foaming almost as much as it was two months ago, but it has lost its smell. I can't account for it. I had 30 hives in the same yard and none of the rest showed any signs of it. The bees seem to be strong and come in loaded the same as the rest of the hives. I have extracted from the rest of the yard, but have left that hive to see how it will come out. I would like to know what caused it.

H. LESTER,
Palmetto, Fla.

## NOTES FROM INDIANA

### Uniting Queenless Bees

When bees are hopelessly queenless, as is the case when shipped in packages without queen, they are easily united with other bees, but for safety sake proceed thus. Take a comb or two from the colony with which you intend to unite them, brush off adhering bees, and place them in an empty hive-body. If there is no honey in the combs, pour on them some sugar syrup or diluted honey, and as soon as the bees take possession of them they begin to fill themselves. When all the bees are well clustered on the combs, place them on one side of your weak colony (not in the center), and there will be no trouble whatever. The newcomers are welcomed, and as they were consciously queenless, they are now desirous for a queen. To introduce a package of bees with a queen to a queenless colony, I proceed in a similar manner, with good results.

### Color of Honey

I am really surprised to read in the October number that Aster honey should be white. This shows that what applies to one locality is different in another. In this locality we had seasons where white asters were in such abundance that roadsides and fields were covered white as snow. Although there were hardly any other flowers present the honey which the bees gathered was rather dark, while in some seasons the honey from the same source was amber. The same experience I had with honey gathered from various sources in the spring. As a rule the honey extracted here in June is dark, while in some seasons it happens to be light amber. Although the seasons in which this occurred produced quite a bit of white clover, it is hard to suppose that the bees skipped all those dark honey-yielding flowers, such as tulip poplar, of which we have a great deal here, to gather their surplus honey exclusively from white clover, which yields honey of a light amber color. The surplus honey extracted during this season is all dark, in spite of the white clover, of which we had enough for some surplus honey. With this experience, I am apt to believe that weather conditions influence the color of honey in different seasons and different localities have probably still more to do with it.

### For an inquirer

When comb foundation in wired frames happens to freeze, it is not injured from this source. I have had some wired frames with foundation time and again in the honey and supply house, where the thermometer has gone below zero and I found that the combs were practically as good as before. When frozen, no combs should be handled, to avoid breakage.

ALPHONSE VEITH,
Indiana.

### Concrete Beehives

Quite frequently someone suggests concrete as a desirable material for making beehives. It is argued that such hives will last indefinitely and can be made at home. However, the weight alone is a sufficient objection to make them impractical for commercial beekeepers.

The hives shown in the picture are some made and used by S. L. Palmer, Hutchinson, Kans. They are made of reinforced concrete, with wood lining, surrounded by newspapers. In spite of this extra insulation the combs sometimes melt down in hot weather. Concrete is so very cold that it is objectionable on that account as well. Since wintering is the great problem to beemen over a large part of the country, a practical hive must lend itself to the easy solution of the winter question.

### Honey From Bitterweed

It was about the 15th of July that a friend of mine who lives 15 miles away and has four or five hives of bees, told me that he had taken off his spring crop and would I put the supers back on. I told him that I would not, at least till velvet began to yield. There is no clover here.

I saw him about two weeks later and he asked me to fix up some supers of sections and send to him, as the bees were getting honey. I couldn't imagine what it was, for it was early for velvet beans, but I sent them to him. Last week I was out there and he said "I want to show you something," and he showed me a large bowl of very pretty honey. I exclaimed, "My, what a beautiful bowl of velvet bean honey!" He said "well, just taste it," and I can't begin to tell you the shock that I got; it was as bitter as gall.

Concrete beehives

He had gotten a super around of this bitter honey from Helenium tenuifolium. He got 32 sections to the hive.

This is commonly called "yellow top" or "bitterweed."

It grows about 10 to 15 inches high and has many little yellow ball-like flowers.

It grows on the roadside and in old fields.

I have seen a red clay road lined between the wheel ruts and the ditch with this plant. With the red road with a strip or ribbon of yellow on the edge with the brown pine needles in the woods and generally a strip of green grass in the ditches, there is a very pleasing picture.

While I have kept bees here for seven years and there is a lot of this yellow top, I have never gotten a surplus crop from it nor have I ever known the bees to get any honey from it, though they get a lot of pollen from the plant.

When cattle eat this plant the milk and butter are too bitter to eat, but they do not eat them as a rule.

My friend has too much other work to do to give the bees the attention that they should have, and I feel certain that if they had been given more attention that they would have given more than a super of sections per hive of this bitter honey. The sections were literally jam full, which showed a heavy, or at least a good flow on. Without attention you generally do not get a super of sections like these unless there is enough of a flow on for them to fill in a hurry.

I am sending the editor a sample of this honey, and will let him give a short description of its body, flavor, etc.

JOSEPH S. SCOTT,
Mt. Pleasant, Ala.

(The honey was duly received, but the taste was so extremely bitter that one could not but lose all interest in the body and flavor. It is apparently entirely worthless for any purpose but to feed back to the bees. —Ed.)

### Minnesota State Association

The Minnesota State Beekeepers' Association will meet December 4-5, in the West Hotel, Minneapolis. For details and program write L. V. France, Secretary, at the University Farm, St. Paul.

### The Chicago Northwestern Beekeepers' Association

will hold their annual convention at the Great Northern Hotel, Chicago, December 10-11. A good program is being prepared and will be sent to anyone interested as soon as completed.

JOHN C. BULL, Sec.-Treas.,
Valparaiso, Ind.

---

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

Honey arrivals since last report:

**Medina, Ohio.**—1,735 lbs. Florida, 29,580 lbs. Wisconsin, 40,140 lbs. Michigan, 1,223 lbs. North Carolina, 33,896 lbs. Ohio, 3.534 lbs. New York, 61,200 lbs. Wyoming, 24, 300 lbs. Mississippi, 93,850 lbs. Pennsylvania, 85,290 lbs. Colorado, 33,000 lbs. Kentucky.

**Keokuk, Iowa**—Reports up to September 9, 2,000 lbs. unknown origin.

**Hamilton, Ill.**—Reports month of August, 2,160 lbs. from Illinois.

### Shipping Point Information

**San Francisco, Calif., Sept. 14.**—Demand and movement moderate. Shippers holding for higher prices. Cash to producer at country loading points —Extracted per pound, water white, 21-22¼c; sage white, 21-22c; light amber, 20½-21½c; dark amber, 15-18c. Beeswax, 33-35c per pound.

**Los Angeles, Calif., Sept. 16**—Shippers feeling practically no demand for export, on account of refusal to grant export licenses. Market firm, on account of active demand from domestic candy and ice cream manufacturers who are unable to secure enough sugar under present regulation. Prices practically unchanged. Cash to producer on farm: Extracted, per pound, white orange supplies very light, mostly 22c; light amber sage supplies practically exhausted, 20½-21½c; white alfalfa supplies exhausted; no sales reported; light alfalfa, 20-21c; amber alfalfa, 19-20c. White comb honey, $5.50-6.00 per case. Beeswax—Supplies increasing, growers holding for 40c; a few sales at 35-36c per pound.

### Unofficial Shipping Point Information

**Caldwell, Idaho** — Crop being packed. Demand moderate; five cars sold; carloads f. o. b. cash track, extracted, in 5-gallon cans, 22½-23c per pound; in 10-pound pails, 24c per lb.

### Telegraphic Reports from Important Markets

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However, in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers.")

**Note:** Arrivals include receipts during preceding two weeks. Prices represent curent quotations.

**St. Louis**—No arrivals. Supplies light. Too few sales to establish market.

**Chicago**—No carlot arrivals, no cars on track. Supplies light. Demand and movement good, prices slightly lower. Sales to jobbers, extracted, per pound, Illinois and Iowa white, 24-25c; amber 22-23c. Comb honey, No. 1, 28-30c. Beeswax, 35-40c per pound, according to quality.

**Portland, Ore.**—25 tons arrived. Demand exceeds supply, movement good. Sales direct to retailers, extracted, per 5-gallon cans, amber 27c, light amber 30c; ton lots, light amber 27c. Comb honey, extra fancy, $7.50 per case; fancy, $7; choice, $6.50.

**New York**—2 cars California arrived incomplete. Receipts light. Demand moderate, movement slow, market firm. Extracted, per gallon, California, light amber $3.12-3.24, white $3.12-3.36, Porto Rican $2.30-2.50, mostly $2.40-2.50. New York, white, $2.75-3.00. Beeswax: Arrivals 300 bags South America, 260 bags Africa; receipts light. Demand and movement good, market firm. Per pound, yellow, 43½-44½c; dark, 42-43½c.

**Cincinnati**—Extracted, 1 car Colorado, 1 car Idaho, 4,596 lbs. from Alabama, 4,900 lbs. from Florida, 2,546 lbs. from Indiana arrived. Demand good, movement moderate on account of high prices; good out-of-town inquiry. Sales to jobbers, extracted, white orange, 26½-27c; light amber, 24½-25c. Comb honey, no supplies. Beeswax: Demand moderate. Average yellow, 36-38c pound.

**Minneapolis** — Minnesota receipts very light. Demand and movement good, prices considerably higher. Sales Friday, Sept. 13, to jobbers, extracted Minnesotas, 60-lb. cans, 30c per lb. Comb honey, Minnesota, 24-section cases, $6.25 per case.

**St. Paul**—No supplies on market; no sales.

**Denver**—Approximately 10,000 lbs. white extracted and 1,500 cases comb honey. Demand exceeds supply, movement brisk, little change in prices. Sales to jobbers. Comb honey, Colorado white, $6-6.50 per case. Extracted white mostly 25c per pound. Beeswax: Receipts light; cash to producer on farm, 37c per lb.

**Spokane**—Supplies light; movement good. Sales direct to retailers, extracted, per pound, Washington and Idaho, light amber, alfalfa, 27-28c per lb. Comb honey, No. 1, white $6.25-6.50 per case, some $6.75.

**Kansas City**—Comb receipts very light, no express arrivals, approximately 50 packages by freight arrived. Demand slow; movement limited; no change in prices. Sales to jobbers: Comb, native Missouri, quality and condition generally good, 24 section cases, light No. 1, $6.50-7.50. Extracted, quality and condition generally good. Light amber, 23-25c per pound. Beeswax: Receipts very light. Demand light, movement slow; no change in prices, 33-35c per pound.

**Philadelphia**—205 cases 191 kegs, 3 barrels from New York, 4 kegs from New Jersey, 58 barrels and kegs from Florida, Georgia and North Carolina arrived. Demand slow; no sales reported.

## DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
**DR. C. C. MILLER, MARENGO, ILL.**
**He does NOT answer bee-keeping questions by mail.**

### Beemoth

In transferring some bees from hives without frames of foundation, I had a lot of old combs. I put them into a clean flour sack, tied it tight and hung it on wall. When I opened it today I found the sack in ridges, like corrugated paper, only larger, with coccoons and big white worms in them. Wax completely ruined. Was it moths? Were they in hive when I took combs out, or did they get in afterwards? I didn't put them away for several days. Am thinking of moving in the vicinity of Seattle, Wash., and want to take my beehives with me, minus bees. Do you think frames wou'd be safe from moths if wire cloth was tacked over top, bottom and entrance? Do you think they would mold? It is very damp during winter. M. E. B.

Answer.—The "big white worms" were the larvæ of the beemoth, without doubt. You say you didn't put the combs away for several days, leaving it a bit uncertain whether you tied them up right away or not. If not, then there is a chance that moths may have laid eggs in them after they were taken away from the bees. The greater chance is that eggs or young larvæ of the moth were on the combs while they were yet in the care of the bees. It is a little difficult to understand why the bees should allow this, but it is the common thing, especially with the common black bees. Italians much better at keeping off the beemoth.

Fastening up the frames, as you suggest, so that a beemoth cannot enter, will keep the combs safe, if no eggs or larvæ are already in them, and there is not very much danger of mold. If eggs or larvæ of the moth are already in the combs, and they are not in the care of the bees, the fumes of burning sulphur will destroy the larvæ. Then, perhaps two weeks later, when all eggs present have hatched out, a second fumigation will destroy the rest. Treating with carbon disulfide will destroy both eggs and larvæ.

---

### Dadant Hives

1. You say you use no spacers in brood-chamber of Dadant hive. What do your frames rest on, the wood, or a smooth piece of metal? The hive I purchased from you has spacers, but I think I would like it better without them.

2. Why would it not be better to cut your foundation longer than 10x17½ inches, so as to more nearly fill the brood-frames and have still less drone comb?

3. If you do not use wires in the extracting frames, don't you find it difficult to make the sheets hang straight down in the center of the frame?

4. Where may the wood splints that Dr. Miller uses be obtained?

5. If the brood-frames were entirely filled with foundation, by splitting the frames and putting foundation between, would this prevent the raising of drones entirely?

6. I have only one colony of bees, in Dadant hive, and they are none too strong in numbers, being started from a 2-pound package last spring, but they have plenty of honey below, and about two-thirds of a super full, also. It seems to be all buckwheat honey. Would you advise me to try to winter them in the cellar on that, or protect the hive good and leave it outside? WISCONSIN.

Answers.—1. The ends of the top-bars rest on metal rabbets. The spacers have been added to accommodate the novices.

2. If the foundation hangs too near the end-bars or bottom-bars, there is danger of curling or crumpling.

3. No; there is no trouble in such shallow frames.

4. The A. I. Root Co., Medina, O., manufacture them, and perhaps you may obtain them from other dealers in supplies.

5. No, for sometimes bees will build a few inches of drone cells over worker base. It is practically impossible to raise no drones at all, in any hive. The excess of drones is what we aim to prevent.

6. We believe the colony will winter properly on this in the cellar. You are far enough north to try it.

(The last two answers are by the editor.)

## Swarms

1. How many times will a strong colony of bees swarm if fed a syrup from April 1 to May 15?

2. Would you advise me to buy a 10-frame colony and 10 queens and divide into ten 1-frame nuclei?

3. Would putting a super on cause bees not to swarm? MISSOURI.

Answers.—1. Maybe four times or more, and maybe not at all. In an ordinary season, when bees are getting plenty from outside, the feeding would make no difference. If there is a time of dearth it might make a great difference.

2. Buying a 10-frame colony would not give you a sufficient amount of brood and bees to make 10 nuclei. It would be a great success if you could make half that many nuclei, introduce queens to them and build them up into strong colonies the first year. The average beekeeper would not try to make more than 3 out of one, except in extraordinary seasons.

3. Putting supers, one or more, on a strong hive of bees, does not insure against swarming, but it helps.

## Dead Brood

1. I have three colonies full of bees in four full 10-frame stories each. I had planned to divide these, as I don't see how I can get all bees into one story. I winter outdoors. There have been indications of brood disease in these colonies since early in July; but as they had brood in two stories and I was raising a lot of drones (I bought these colonies last fall, all my new colonies have full sheets of foundation). I thought it might be neglected brood. The scales carried out were principally drone-brood, but some worker-cells were also affected. The larva dies mostly after sealing; the cappings are sunken and sometimes perforated. There is no ropiness; the larva dies after being capped and is being carried out and the cells kept clean. Do you think it could be sacbrood? I have requeened one of these colonies on new sheets of foundation under a queen excluder; but it did not effect a cure. I have the queen caged now, and intend to keep her so for ten days I am going to requeen the other two. Is there anything gained by caging as late as this, when brood-rearing will soon be over?

2 Would you advise dividing those strong colonies?

3. Will bees carry honey out of the supers down into the brood-chamber in the fall? If not, what can I do to get them to take it down, as I cannot winter in two stories? WISCONSIN.

Answers.—1 The thing for you to do is to send a sample of diseased brood to Dr. E F. Phillips, U. S Department of Agriculture, Washington, D. C. If you write him in advance he will send you a box for you to send the sample in, with a frank for postage. He will have an analysis made, will tell you what the disease is, and will send you matter indicating treatment; all without charge. You will get no result from caging the queen after she stops laying. Moreover caging the queen is only for European foulbrood.

2. Unless you are very anxious for increase, it will be better not to divide a strong colony now. The strong colony will not be likely to have difficulty in getting into a single story when the other stories are taken away.

3. Unless the brood-chamber is already full, the bees will be likely to carry down the honey. You can help by uncapping the honey in the super, or by smashing the cells somewhat.

## Dividing for Increase

1. The best way to do in comb honey, it appears to me, is to leave the queen on the old stand, best to wait therewith until there are capped queen-cells, and then to make of the brood (aside of the poorest frame thereof) at least two nuclei, until one has an abundance thereof—thus there will be lots of new queens, and in a fine season, as it has been here, many of the nuclei will grow into colonies; finally, as a last resort, brood, as you advise, can be piled up.

2. The grass around here is very tall and coarse—seems unfit to crowd into an entrance, so I take nuclei—the frames to make two are arranged in the regular upper story of the colony over an excluder—they all soon get heavy with bees;—then can be taken out and be put into hives; entrances closed up with wire netting for two days or longer; or, exactly as long as one wishes. I have made dozens and know it works well. PENNSYLVANIA.

Answers.—1. Your plan will probably work right in most cases. If I understand correctly you will wait till the bees make preparation for swarming, and have cells sealed, then take away all but one frame of brood with adhering bees, and make of them two or more nuclei, leaving the old queen with one frame of brood on the old stand. Sometimes, however, the bees will not prepare to swarm, and if they do, and you wait for cells to be sealed, you may be too late, for a swarm may issue as soon as the first cell is sealed. To provide against this, as soon as cells are well advanced, or indeed before they are started at all, you can take one brood with queen and adhering bees and put on a new stand; then, when cells are sealed in the old hive, or perhaps better 5 or 6 days after they are sealed, divide the contents of the old hive into nuclei and return the old queen to the old place.

2. It may be better for you to close the entrances to your nuclei with wire cloth; but for many there are advantages in using grass or leaves instead of wire cloth. If a nucleus is in an outapiary where one would not be on hand at the right time to open the entrance, or if one is in danger of forgetting in a home apiary, the bees with the grass entrance may be safely left to themselves. If the right grass is not present, almost any leaves will do.

## Wintering

On our former place we wintered with success on the south side of the schoolhouse, protecting the bees with boards on top and from all sides. But now, on the new place here at Okawville, Ill., we have a barn with a buggy-room to the south, where both doors could be opened wide. We thought to bring our good friends in this room as soon as real frost sets in. The barn remains unused. When the warm spring days come, we could open both door wings and close them at night

Do you think this will work all right? ILLINOIS.

Answer.—As far south as you are, there should be no trouble, as you are about the latitude of St. Louis. But when you move the bees, if you do not take pains, some may return to the old spot. They should be made to know that they have been moved, by disturbing them and using a slanting board or other obstruction in front of the hive to compel them to take notice of the change in location. After 2 or 3 flights they will be accustomed to the new location and the obstruction may be removed.—Editor.

## Comb—Italians—Concrete Hives

1. Where do bees get their comb?

2. Are Italian bees better than common American bees? If so, why?

3. Is a 10-frame hive better than an 8-frame hive? If so, why?

4 Will nice, clean sorghum molasses kill bees?

5. Why are not concrete hives good? ARKANSAS.

Answers—1. They make it from wax that is secreted by them a little in the manner milk is secreted by a cow, from the food she eats. The bees must eat honey and pollen to secrete wax. Some say as little as 3 or 4 pounds of honey to make a pound of wax; some say as much as 20 pounds.

2. Italians are almost universally considered better in this country. They protect their combs better from the bee-moth, but the great thing is that you get more money from them.

3. The large hive is generally preferred, one important reason being that there is less danger of bees starving in winter.

4. I don't know for sure; but I think it might kill them for winter stores, although it will not hurt them when flying daily.

5. They might be all right if not too heavy, or too cold.

## Swarms

In the September number of the American Bee Journal I notice the question: "Does a prime swarm throw out swarms the first year?" On the 15th of May I hived two swarms. On the 15th of July both threw out swarms. I hived them and today all four swarms are strong and apparently doing well. ILLINOIS.

Answer.—In the September number to which you refer, I said a virgin swarm occurs "occasionally." You seem to have more of them than usual.

Beekeepers' Supplies of All Kinds

Dovetailed hives, sections, foundation, smokers, etc., sold at a reduction.

Beeswax and honey wanted, also second-hand extractors.

New price list ready, free.

W. D. SOPER
419 Liberty St. Jackson, Mich.

FOR THE MAN WHO CARES

Honey Labels, Stationery, Cards, Tags, Circulars—Everything for the Beekeeper—in the Superb Style and Quality of . .

Printing that's Different

AMERICAN BEE JOURNAL, HAMILTON, ILL.

## Pollen for Winter

1. I recently secured several colonies of bees from farmers who were about to kill them to get the honey. I put them on frames of sealed honey, but now they have no pollen. What can I give them as a substitute? And when, and how?

2. In a packing case holding but a single colony, and allowing 10 inches of packing on the top, would the hole in the inner cover, intended for a bee-escape, give ventilation enough if I tack a piece of burlap over it? Or would it be better to lay the chaff cushion on top of a queen excluder?

3. Which is the better packing for the top, oat chaff, hayseed, or leaves?

4. If the top packing were less, should the hole for upward ventilation be smaller or larger? CENTRAL NEW YORK.

Answers.—1. Don't worry. In those frames of sealed honey there is, mixed in the honey itself, all the pollen the bees need for wintering. When it comes time for brood-rearing in the spring they will need more, and it is just possible that in your locality they may not get enough for their early needs. At any rate, as soon as they begin flying daily, it will do no harm to offer them some substitute. Almost any ground grain will do. Rye meal is somewhat generally used, although I have never tried it. I have used with satisfaction corn and oats ground together, such as is ground for horses and cows. Put the feed in a shallow box in a sunny place. Put a stone or something under the north side of the box so as to raise it a little. As fast as the bees dig it down level, turn the full side again to the north, so they can dig it down again. If you use corn and oats, they will work out the fine part, and the rest can be fed to the stock. As soon as they can get natural pollen freely they will neglect your substitute.

2. Either one will do.

3. Dry leaves are likely a little better than the others.

4. The less the packing the less the hole, it there is opening above the packing; although there need be very little difference.

## Behavior of Queens

1. Some time ago I received a queen by mail, and after introducing her to the colony of bees, I noticed that she commenced to lay in only one frame (although there would have been room in other frames) and she laid as many as six eggs in one cell. What made her do that?

2. In rearing a young queen above a colony where there is a laying queen below, how many empty brood-chambers would you advise for best results between the queen excluder and the queen that is to be reared? INDIANA.

Answers.—1. I don't know I know that sometimes a queen takes a fit to do that sort of thing for a time, and then settles down to sensible work afterward, but I don't know why. Possibly the workers in their queenless condition have become demoralized and keep only the one comb in condition for the queen, but that still leaves the question why they do so.

2. In spite of a good deal of experimenting, I'm not sure just what is best. The farther from the brood-nest the more sure the bees are to start cells, although if cells already started are given in the first story above the excluder, the bees are pretty certain to continue them. There is little trouble in getting young queens hatched out, whether the cells be given in the first or the third story above the excluder; the trying time comes later, the young queens disappearing about the time you think they ought to be laying. My efforts in this direction have generally been failures, although I have had a number of cases in which I have found queens laying in upper stories when I had not so intended. I think these have generally been when the young queen was in the third story above the excluder.

## **Statement of the Ownership, Management, Circulation, Etc.,** required by the Act of Congress of August 24, 1912, of **American Bee Journal,** published monthly at Hamilton, Illinois, for October, 1918:

STATE OF ILLINOIS, } ss.
County of Hancock. }

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Business Manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, American Bee Journal, Hamilton, Ill.
Editor, C. P. Dadant, Hamilton, Ill.
Managing Editor, Frank C. Pellett, Hamilton, Ill.
Business Manager, M. G. Dadant, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: None.

(Signed) M. G. DADANT.

Sworn to and subscribed before me this 8th day of October, 1918.

H. M. CUERDEN.

My commission expires August 25, 1921.

# CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

## BEES AND QUEENS

QUEENS—Bees by parcel post and we pay the postage. Will ship Italian bees this year from our own yards; they are hustlers. A few pounds of honey next year at 25 to 30c per pound will pay for your packages of bees. We shipped thousands of pounds last season. We are booking orders now, one-fourth down, balance at shipping time. We are going to winter 1,000 young tested queens reared in October, so can ship tested queens as early as you want them.

| | |
|---|---|
| One 1-pound package bees, prepaid | $2.90 |
| One 2-pound package bees, prepaid | 5.00 |
| One 3-pound package bees, prepaid | 7.00 |
| Select untested queens | $1.50 each |
| Tested queens | 2.50 each |
| Select tested | 3.00 each |

10 per cent discount on orders amounting to 25 packages or more. Add price of queen wanted when ordering packages of bees. Breeders, $5 and $10. Send for Free Circular giving details. Reference: The Guaranty State Bank, Robstown, Tex., or the City Nat. Bank, Corpus Christi, Tex.

Nueces County Apiaries, Calallen, Tex.

FOR SALE—9 colonies of bees in 10-frame hives, Hoffman wired frames, full sheets Dadant foundation; also a lot of empty hives, supers and other bee supplies. Write for prices and particulars.

Edwin Bevins, Leon, Iowa.

WANTED—Clover honey, comb or extracted; state price and how packed.

Odell F. Burch,
2323 S. Woodstock St., Philadalphia, Pa.

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.

2Atf J. B. Brockwell, Barnetts, Va.

FOR SALE—Good second-hand 60-lb. cans, 2 to the case, at 50 cents per case in lots of 50; will exchange for honey.

E. B. Rosa, Monroe, Wis.

NO MORE QUEENS this season. Root's beekeeers' supplies.

A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50.

Garden City Apiaries,
San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50.

H. G. Dunn,
The Willows, San Jose, Calif.

BEES AND QUEENS from my New Jersey apiary.

J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.

J. F. Diemer, Liberty, Mo.

QUEENS—H. D. Murry's strain of 3-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed.

O. D. Rivers,
Route 4, Honey Grove, Texas.

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease.

Wilmer Clarke, Earlville, Madison Co., N.Y.

## HONEY AND BEESWAX

WANTED—White clover or amber honey in any amount. Quote lowest price f. o. b. Cleveland, the way put up and amount you have. Kindly send sample.

E. W. Buckley
353 E. 123rd St., Cleveland, Ohio.

FOR SALE—About 3 000 pounds basswood and 1,500 pounds clover extracted honey in new 60-lb. cans, two cans in box, for 25 cents a pound, cash.

J. P. Goodwin,
South Sioux City, Nebr.

FOR SALE—Clover, heartsease, extracted 25c per lb., 60-lb. cans.

W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—50,000-lb. carload extracted alfalfa-sweet clover honey, subject to best cash offer f. o. b. Delta, Colo.

Gale H. Patterson, Delta, Colo.

QUICK CASH for extracted and comb. Send sample, or describe and say price.

Bruner, 3836 No. Kostner Ave., Chicago.

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section.

Charles Israel Bros.' Co., Inc.,
486-490 Canal St., New York.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered.

The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.

E. B. Rosa, Monroe, Wis.

QUICK CASH for comb or extracted. Send sample and say how packed, how much and price. Bruner, 3836 N. Kostner Ave., Chicago.

WANTED—Comb, extracted honey, and beeswax

R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

## WANTED

WILL PAY CASH, or give $100 typewriter, for honey extractor.

L. Clark, Winona, Minn.

WANTED—Novice separator ready for the scrap pile.

C. W. Campbell,
Reevesville, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.

Dadant & Sons, Hamilton, Ill.

WANTED — French correspondents. Miss Odette Giraud, 34 Rue du Docteur Fournier, Tours, Indre & Loire, France, daughter of a French apiarist and queen breeder, and 16 years of age, desires to correspond with one or more American girls of about her age, who are studying the French language. Each would write in the language of her correspondent and they would correct each other's mistakes. They would thus secure interesting information while learning the language.

TRY AN ADD in this department to sell that good equipment which you no longer need. Our want ads do the business.

CASH for extracted honey, white and amber, in 10-pound cans. Thomas Lang, 1572 N. Halsted St., Chicago, Ill.

WANTED—Bees and equipment for good 4-room house and lot in Topeka, Kans
A. V. Small, Box 218, Augusta, Kans.

WANTED—Samples of honey from the different plants for our office collection. We will pay for the honey and send a parcel post can for mailing. Samples to be of value should be from one kind of flowers only and unmixed with honey from other sources, as nearly as possible. A pint will be sufficient for each kind, but we wish to secure samples of the same kind of honey from several widely separated localities.
American Bee Journal, Hamilton, Ill.

## FOR SALE

FOR SALE—40 cases of extra good second-hand 60-lb. cans, 2 cans to the case, at 65 cents per case. John Kneser, Hales Corners, Wis.

FOR SALE—100 8-frame hive bodies, full depth; 100 8-frame shallow extracting supers, all painted white. Write for prices. All filled with drawn-combs. Address
James D. Benson, Juda, Wis.

FOR SALE—Hershiser wax press; used one season; first $20 takes it.
Ed. Swenson, Spring Valley, Minn.

FOR SALE—During 26 years of active beekeeping and during the last ten years, have operated not less than fourteen hundred colonies, and during all that time have sold only 28 colonies. I am now going to offer about one-half of my holdings, or 800 colonies of bees for sale, in fine condition, with full equipment. This offering is an independent plant and a good money maker for one who is a business man and who understands bees. A proposition I can show without hesitancy of opening any hive to anyone. A partial payment and proper security will be acceptable, with reasonable time for the balance.
J. W. George, El Centro, Calif., Box 62.

OUR PRINTING SERVICE is unexcelled. If you want labels, stationery or circulars, write for samples and prices.
American Bee Journal, Hamilton, Ill.

FOR SALE—40,000-lb. car of white extracted clover-alfalfa honey; state best offer, f. o. b. Hardin, Mont., in first letter. Sample if wanted. S. F. Lawrence, Hardin, Mont.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

BEAUTIFUL FARM HOME—Improved, rich soil, well located, good buildings, 100 colonies of bees, up to date, best honey-producing location in State; not crowded; average for past seven years 105 lbs; 5 acres of ginseng golden seal, all ages, in fine shape. One-half artificial shade, one-half natural. Price $80 per acre; $7,000 for farm and bees, 150 extracting supers with combs, 100 excluders, 2-frame extractors, 2 large honey tanks, 150 shallow supers. Terms, $3 000 cash, balance on time. Will sell a part or all. A wonderful opportunity; a bargain. Poor health reason for selling. W. M. Penrod, Ronneby, Minn.

Cowan Extractor, $18; white leghorn cockerels, $1; fox terrier puppies, $2.
Lorenzo Clark, Winona, Minn.

YOU can make your own comb foundation and earn big money making it for others. New, easy, rapid process. Machine and all apparatus complete, with full instructions, $100. Wax worked on shares or for cash.
J. J. Angus, Grand Haven, Mich.

## A HOLIDAY SUGGESTION

## "Our Backdoor Neighbors"

By FRANK C. PELLETT
Author "Productive Beekeeping" and "Practical Queen Rearing"

A delightful account of the author's personal experiences with wild creatures. Every illustration from life.

Price postpaid, $1.50; with "Productive Beekeeping," both, $3.
With "Practical Queen Rearing," both, $2.25; all three, $3.50.

## "The Flower and The Bee"

By JOHN H. LOVELL

A popular exposition for beekeepers and flower lovers of the far-reaching subject of pollination in general. With many illustrations.

Price $2. With "Our Backdoor Neigbors," both, $3.25.

AMERICAN BEE JOURNAL, Hamilton, Ill.

## "Practical Queen-Rearing"

Is the title of the new bee book, cloth bound, 100 pages, which has just been written by Mr. Frank C. Pellett, who is well known to our readers.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Dines, Miller, Alley and others with variations as practiced by different large breeders.

You have this in the new book which is just out. Send for your copy now and get informed as to your best method of rearing queens from your best colonies. Good pointers in it also for the large beekeeper and veteran queen breeder.

**Price, postpaid, only $1.**

By special arrangement we can offer it and a year's subscription to the **American Bee Journal** for only $1.75.
(Canadian orders 15 cents extra.)

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

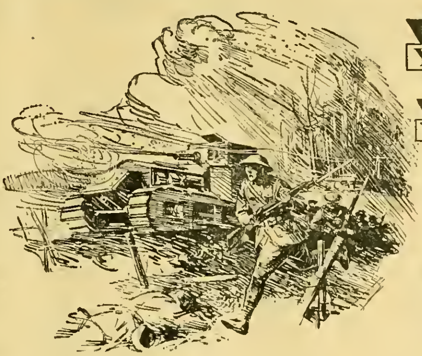
## Your Prospective Customers

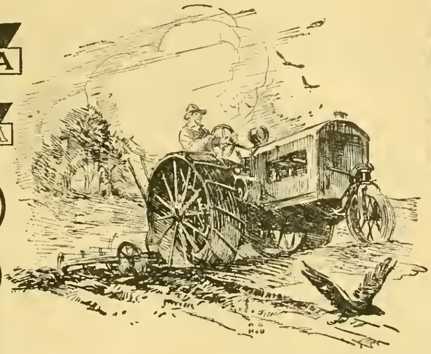
are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 6000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. ***This valuable Reference Book free.*** Write for it.

**Strengthen Your Advertising Literature.**

Our Analytical Advertising Counsel and Sales Promotion Service will improve both your plan and copy, thus insuring maximum profits. Submit your literature for preliminary analysis and quotation—no obligation.

**Ross-Gould Mailing Lists St. Louis**





YMCA
YWCA
NATIONAL CATHOLIC WAR COUNCIL
J.W.B.
WAR CAMP COMMUNITY SERVICE
ALA
THE SALVATION ARMY

**Over there Over here**

THROUGH mud and rain, through gas and shrapnel, our boys are pushing on to Victory. It's a task that tries the souls of strong men. They *must* have rest and recreation.

At the canteens, they buy the little comforts of life at cost. In the war-service huts, they find everything needful to write the letters you receive. They attend a show, see a "movie" or hear good music—all free. Always, they find in the hut secretary a friend. They forget for a little while the grim scenes of war and return to duty refreshed. These are some of the things that keep fighting men at top notch.

YOURS is the task of growing the food these fighting men must have. The toiling millions in the munition factories, arsenals and shipyards also look to you for sustenance. And they do not look in vain.

Your work is vital to winning the war and you are doing it manfully, mindful of Country, forgetful of self. You are working early and late, putting forth your strength unsparingly. You have produced bounteous crops that feed a hungry world. Yet to you are spared the comforts of home and the presence of loved ones. Yours are the privileges of earning and giving.

**Give to "keep good men good and brave men strong." Give to bring cheer to those who are daring their all for you and yours. And when the boys come home victorious, you can honestly say, "I have done my part, too. I have backed you to the limit."**

*Seven allied activities, all endorsed by the Government, are combined in the United War Work Campaign, with the budgets distributed as follows: Y. M. C. A.,* $100,000,000; *Y. W. C. A.,* $15,000,000; *National Catholic War Council (including work of the Knights of Columbus and special war activities for women),* $30,000,000; *Jewish Welfare Board,* $3,500,000; *American Library Association,* $3,500,000; *War Camp Community Service,* $15,000,000; *Salvation Army,* $3,500,000.

Contributed through Division of Advertising

ADVERTISING TO VICTORY

United States Gov't Comm. on Public Information

*This space contributed for the Winning of the War by*

**DADANT & SONS**

# Crop Report and Market Condition

Compiled by M. G. Dadant

For our November report we will consider the following divisions as of most importance to the beekeeper:

1. The Honey Crop.
2. Condition of Bees, Feeding, Increase.
3. Honey Flora and Rainfall.
4. Honey Prices and Demand.

## THE HONEY CROP

Although first reports did not seem to indicate it, it is very likely that the crop this year will be in excess of that of 1917, although some sections show a much decreased yield.

In the New England States, in New York and, in fact, all along the Atlantic border, the crop has been in excess of that of last year, with a heavy flow and a good crop reported, especially from many parts of New York State.

The South has not had as large a crop as in 1917, though still far from a failure. Georgia seems to have fared the best of any of the Southern States. Eastern Florida was also good, but there was a near failure in Western Florida, and in Louisiana.

Alabama had a fair crop from sweet clover, while in the sweet clover sections of Mississippi the crop was excellent. Bitterweed in the fall put colonies in most parts of Alabama in good shape for winter.

Tennessee and Kentucky crops have been fair to average, with good yield in the aster sections.

Ohio had a fair early crop, with nothing in the fall, while Indiana and Illinois have had very little surplus this season, the fall crop being fair in most parts so as to put colonies in good shape without feeding. In purely white clover locations heavy feeding is being done to get bees in shape for winter.

The Michigan crop is fair but not up to last year, while one well-known reporter states that the season has been a failure in Wisconsin with heavy feeding necessary. This reporter has just finished feeding 5,000 pounds of sugar to his bees.

In Minnesota, Eastern Iowa and Missouri the crop is a near failure, with much feeding being done. The sweet clover belt of Western Iowa, Kansas and Nebraska has a crop much in excess of a year ago.

Many Texas reporters claim practically a total failure again this year, but a majority of reports indicate that there has been much more honey produced there than in 1917, and bees are going into winter in much better shape, though no little feeding has to be done.

In the Rocky Mountain States the crop is about average, which means that they have had a fair crop. Washington reports a much smaller crop than in 1917, and it is likely that the same will apply to New Mexico, and most of California.

## CONDITIONS OF BEES

Generally, bees are going into winter in very fair shape, even though considerable feeding is being done. The big price of honey and the consequent desire of all to produce as much as possible in 1919 has made more feeding than usual, undoubtedly to the betterment of the crop next year.

Much increase has been made this year, in fact it is not improbable that most of the losses have been made up in the country for the bad season a year ago, and in many instances where the crop has been good as high as 200 per cent increase has been made.

One lack here seems to be that colonies are not going into winter with as large a supply of bees as might be hoped for, probably, however, owing to the drought of summer, which was not followed till late by the fall flow, with the result that colonies still have much brood and are still breeding up.

## FLORA AND RAINFALL

It is too early to make any guess as to the condition of plants as affecting the 1919 flow. The prolonged drought of summer in the white clover regions has, to a large extent, however, cut the flora for next year. Late rains are having the effect of bringing some of the plants back to life, but we believe from present indications that the clover crop will not be large generally next season, though some locations favored by early rains may be extremely good.

In our own yards we count on little surplus next spring and are making plans for a cleanup year, and some increase, getting ready for a possibly good crop in 1920.

## HONEY DEMAND AND PRICES

The demand for honey is still at its best.

In the export trade, some sales have been cut off by the fact that all sales for England are being made through the British government, with the result that some connections and guaranteed prices have been canceled.

We have heard of one instance of the withdrawal of a guaranteed price of 25 cents by a British firm owing to the ruling.

It is questionable whether this, combined with the difficulty in getting space in steamships for other allied countries is having a serious drawback on our exports of honey, since the allied governments are still demanding honey.

There is no doubt but that the demand for honey had increased on the part of the manufacturer of food products in which sweets are used, such as cakes, candies, etc. The ruling cutting down the amount such firms can have of sugar to 50 per cent of former requirements, forces the use of honey and other sweets, even at much higher prices.

Demand for direct consumption is also on the increase, and for the same reason as above, both because of inability to get as much sugar as before war restrictions were enforced, and for patriotic reasons.

There is no doubt but that most of the 1918 crop of honey can be disposed of by Christmas if the producer is willing to take a price within bounds. There are already producers who are holding for 30 cents per pound in large quantities.

Honey is generally leaving the hands of producers at prices ranging from 22 to 26 cents in car lots, while comb honey is commanding in the neighborhood of $6 to $7 per case.

One large producer is selling out in smaller quantities at about the following prices:

10-pound cans, $3.25.
5-pound cans, $1.75.
One 60-pound can, $18.
Larger quantities, 27 cents to 28 cents per pound.

These prices are certainly remunerative enough, and we doubt if the bulk of producers will ask for more, even though they may be able to get it.

Of course, when it comes to replacement of stock by buying elsewhere, the producer will have to vary his price according to what he will have to pay.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item,** a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping,** or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

**Your Prospective Customers** are listed in our Catalog of 99% guaranteed Mailing Lists. It also contains vital suggestions how to advertise and sell profitably by mail. Counts and prices given on 9000 different national Lists, covering all classes; for instance, Farmers, Noodle Mfrs., Hardware Dlrs., Zinc Mines, etc. *This valuable Reference Book free.* Write for it.

**Strengthen Your Advertising Literature**

Our Advertising Counsel and Sales Promotion Service will improve your plan and copy, insuring maximum profits. Submit your plans or literature for preliminary analysis and quotation, no obligation.

**Ross-Gould**
**Mailing Lists St. Louis**

## Weis Fibre Containers

**FOR EXTRACTED HONEY**

Neat, clean, leak-proof, and inexpensive. Especially adapted for home market.

Send for prices. Samples, postpaid, 15c in stamps.

**M. H. HUNT & SON, Agents**
**LANSING, MICHIGAN**

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.

**American Bee Journal, Hamilton, Illinois**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

## Prepare for a Big 1919 Crop of Honey

By ordering your supplies promptly, also make a saving on purchase prices, as we are offering attractive discounts for early orders. Remember, we carry the most complete line of Lewis Bee Supplies and Dadant's Foundation, also Honey Extractors in the East, and our location on the Main Trunk Lines gives us the best shipping facilities.

Send us a list of your requirements, and we will quote you a price that will please you. We would also be pleased to quote you on Glass Jars and Friction Top Pails.

**THE DEROY TAYLOR CO.**
**Newark : Wayne County : New York**

## Golden Italian Queens

Rustburg, Va., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $6, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly.

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1 to May 1 | | | May 1 to June 1 | | | June 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.60 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.60 | 7.60 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**No Nuclei or Bees by Pound.**

Safe arrival, purity of mating and satisfaction guaranteed.

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**
**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# BEEKEEPERS!

DO YOUR BEST TO SUPPLY THE WORLD'S NEED OF SWEET DURING THE YEAR 1919.

KEEP MORE BEES. GIVE THEM UP-TO-DATE CARE. MAKE THEM PROFITABLE.

WE CAN HELP YOU BY MAKING PROMPT SHIPMENTS OF ALL STANDARD HIVES AND FIXTURES USED BY PROGRESSIVE HONEY PRODUCERS.

WE WILL BUY ALL THE GOOD HONEY YOU HAVE TO OFFER AND PAY TOP PRICES.

A CATALOG FOR THE ASKING.

**Western Honey Producers**

**1929-1931 Fourth Street** **SIOUX CITY, IOWA**

## CANS AND SHIPPING CASES

We have a fine stock of Five-Gallon Cans and Shipping Cases; also Comb Foundation, Extractors, Honey Tanks, etc. Quick shipments.

MADE RIGHT
BEE SUPPLIES

*Quality ... Service*

**THE KRETCHMER MFG. CO.**

**301 Eleventh Avenue**
**Dept. A** **COUNCIL BLUFFS, IOWA**

## LEUTZINGER & LANE

**Wholesale Dealers and Shippers of**

**Extracted and Comb Honey**

**Cor. Drumm and Oregon Sts.** **SAN FRANCISCO, CALIFORNIA**

## Western Beekeepers Attention

We pay spot cash for Honey, and do not handle on commission. Write us what you have, or expect to have, to sell. We buy any quantity.

Write for Price List and Booklet descriptive of

**HIGH GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

THE YOUTH'S COMPANION is worth more to family life today than ever before. Today, those who are responsible for the welfare of the family realize the imperative need of worthwhile reading and what it means to individual character, the home life and the state. Everywhere the waste and chaff, the worthless and inferior, are going to the discard.

The Youth's Companion stands first, last and continually for the best there is for all ages. It has character and creates like character. That is why, in these shifting times, the family turns to its 52 issues a year full of entertainment and suggestion and information, and is never disappointed.

It costs only $2 a year to provide your family with the very best reading matter published. In both quantity and quality as well as in variety The Youth's Companion excels.

Don't miss Grace Richmond's great serial, Anne Exeter, 10 chapters, beginning December 12.

The following special offer is made to *new* subscribers:

1. The Youth's Companion—52 issues of 1919.
2. All the remaining weekly issues of 1918.
3. The Companion Home Calendar for 1919.

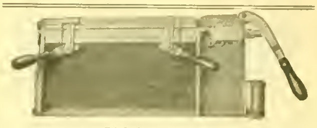
All the above for only $2, or you may include

4. McCall's Magazine—12 fashion numbers.

All for only $2.50. The two magazines may be sent to separate addresses if desired.

THE YOUTH'S COMPANION,
Commonwealth Ave., & St. Paul St.,
Boston, Mass.

New Subscriptions Received at this Office



PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

**MARSHFIELD GOODS**

**BEEKEEPERS**

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality**; **best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

**EARLY ORDER DISCOUNTS WILL**

**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

**WILL SELL AT WHOLESALE**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

**A BIG STOCK OF BEE SUPPLIES**

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers. Send for a price list. **I can save you money.**

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

**PORTER BEE ESCAPE SAVES HONEY TIME MONEY**

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

**Comb Honey Shipping Cases**

**Our shipping cases are all accurately made of nice basswood lumber. This makes a very attractive, neat and strong package.**

Send for our Catalogue.

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

**BEE SUPPLIES**

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

A trial order will convince you that our prices and goods are right.

Send us your inquiries.

**A. H. RUSCH & SON CO.**
**Reedsville, Wis.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4.25; doz. $8.00 select tested, $1.25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35; 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk. No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

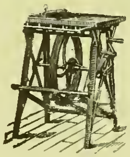
**BEE SUPPLIES**

**Let Us Figure With You**

We know we can satisfy you on price and $8.00; select tested, $1.25.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

**BARNES' Foot-Power Machinery**



Read what J. I. Parent, of Charlton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# SECTIONS

PRODUCERS of section honey should lay in their supply of sections before December 1, in order to take advantage of the 10 per cent early order cash discount for orders received prior to that date. ℂ The fact that the British Government awarded us the contract for three million sections in February, 1918, should be sufficient proof of the high quality of our sections — and yet the price is no higher than for those of other makes. Regular size sections stocked at all our branches.

Write today for prices and any other particulars.

## The A. I. ROOT CO., Medina, O.

New York
Chicago
Philadelphia

Indianapolis
St. Paul
San Francisco

Los Angeles
Syracuse
Norfolk

---

CYPRESS "THE WOOD ETERNAL"

## CYPRESS by TEST
## Substitutes by TALK

CYPRESS LASTS PRACTICALLY FOREVER

### The PROOF? — Two Letters FROM BEEMEN:

"Our correspondent makes serious complaints against———and Makes a Plea for Cypress as a Beehive Material. We hope you will look into this matter." (Etc.)—and here's another:

"Mr. ———, of ———, just came into the office. He informs us that they tried a car of Cypress Lumber last year for the first time, and are so well pleased with it that they are Ordering Another Car for use in making Hive Bottoms."

Is there value to you in an endurance test of 48 years in greenhouse sash? It is reported to us that sash made of heart Cypress by a prominent greenhouse contractor in Chicago, and placed in position in a greenhouse at Des Plaines, Ill., in 1868, are **Still Doing Service.**

**It Will Serve You as Well** and save you the nuisance and expense of repairs and replacements.

The argument backed by such facts cannot be answered by mere talk. Ask the manufacturer or contractor who wants to give you a "substitute" for Cypress to cite to you an endurance test of 30 or 45 years to the credit of the so-called "substitute."

That is no more than a fair precaution on your part—good, ordinary business sense.

**Write us for Vol. 1 of the Famous Cypress Pocket Library with Full U. S. Government Report on "The Wood Eternal"**

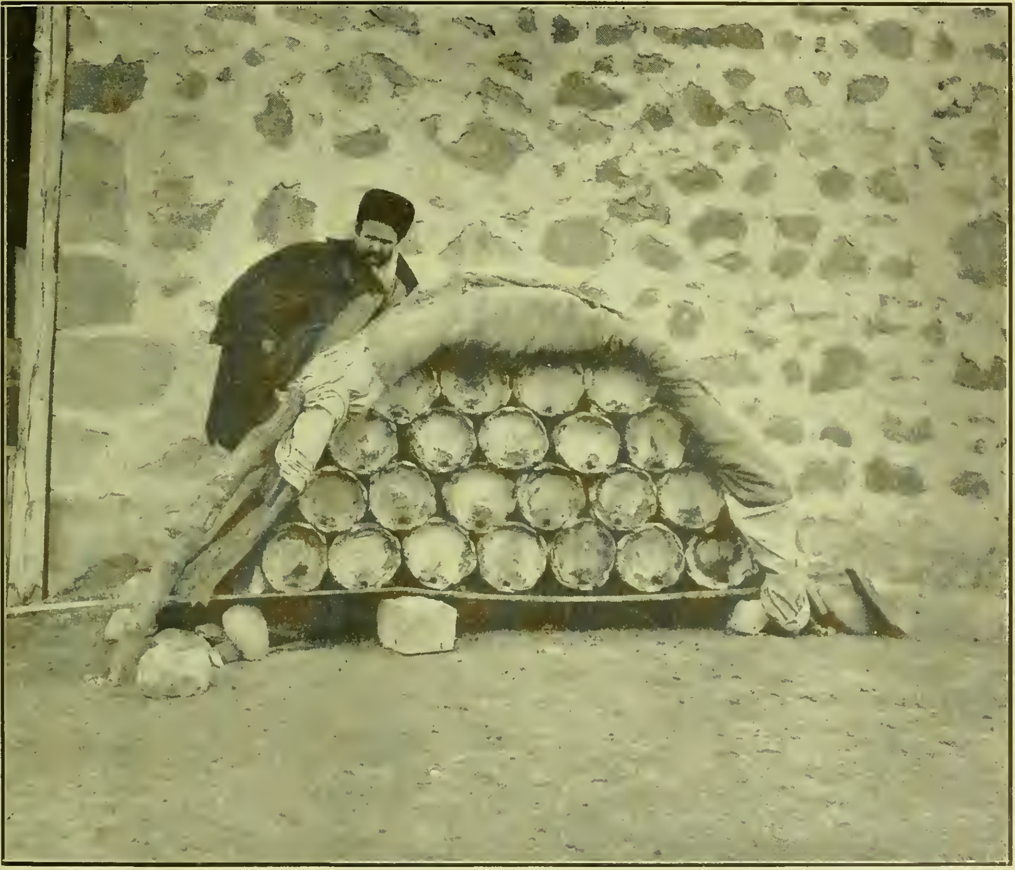
## SOUTHERN CYPRESS MFRS.' ASSOCIATION

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA. ═══ 1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

AMERICAN BEE JOURNAL

DECEMBER, 1918



CYLINDRICAL WICKER HIVES WITH WOOD DISK AT EACH END, SHUSKA DISTRICT, ELIZABETHPOL STATE, CAUCASUS

# Ready Money for Your Honey

**SHIP IT NOW**

If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

**PROMPT REMITTANCE**

Remittance sent by return mail for every shipment we receive. Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

**OLD COMBS and CAPPINGS**

Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED---COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

## Our New Home

We are now located at Pearl and Walnut Sts., and have the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

## We Sell Lewis' Beeware

"Lewis" stands for the highest quality Beeware known. It is safe and reliable. "Made like furniture." We are glad to fulfill your needs.

**SEND FOR OUR 1918 BEE CATALOG**

**DADANT'S FAMOUS FOUNDATION**

**ROOT'S SMOKERS and EXTRACTORS**

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
CINCINNATI, OHIO

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price Postpaid $1**

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price Postpaid $1.25**

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price Postpaid $1**

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

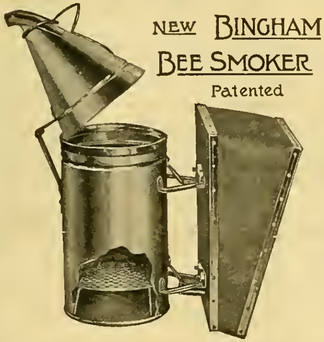
A full treatise on beekeeping. Cloth; 575 pages.

**Price Postpaid $1.50**

**ALL FOR SALE BY**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILLINOIS**

# New Bingham Bee Smoker



In 1878 the original direct draft bee Smoker was invented and patented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly thirty-five years, and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name in the beekeeping industry.

Bingham Smokers have been improved from time to time, are now the finest on the market, and for over forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies, or direct from the manufacturers.

| | Size of Stove | Weight | Retail |
|---|---|---|---|
| Smoke Engine | 4 x7-inch | 2¼ lbs | $1.50 |
| Doctor | 3½x7-inch | 2 lbs. | 1.15 |
| Two above in copper, extra each | | | 1.00 |
| Conqueror | 3 x7-inch | 1¾ lbs. | 1.00 |
| Little Wonder | 3 x5½-inch | 1¼ lbs. | .80 |

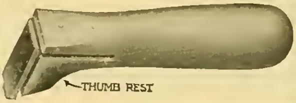
Hinged cover on the two larger sizes. Postage extra.

**A. G. WOODMAN CO., Grand Rapids, Michigan**

## BINGHAM HONEY UNCAPPING KNIVES

### WITH NEW COLD HANDLE

We are furnishing the same quality steel, best money can buy, thin-bladed knives that Mr. Bingham manufactured years ago. The old-timers all remember these knives and many are writing in, as Mr. Volstad in the following letters. The substitutes offered by others have not given the satisfaction desired.

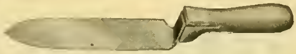


Lyle, Minn., June 21, 1917.

*A. G. Woodman Co.*

Gentlemen: Have you the thin, good working uncapping knives we used to get about 20 years ago and that worked to perfection?

K. H. Volstad.



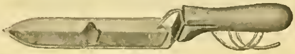
We sent an 8½ and 10-inch knife and received the following letter:

Lyle, Minn., July 5, 1917.

*A. G. Woodman Co.*

Gentlemen: Knives received; glad you sent them at once. They are just what I want and have been looking for, but did not know where to get them.

K. H. Volstad



Many of the most extensive honey producers insist on the Genuine Bingham Knives. Mr. N. E. France, of Platteville, Wis., gave us a fine unsolicited testimonial on the steam-heated Bingham Knife, too long for this space.

| | Weight | Price |
|---|---|---|
| 8½-inch blades | 12-oz. | $1.20 each |
| 10-inch blades | 14-oz. | 1.35 each |
| 10-inch blades, steam heated, with tubing | 20-oz. | 4.00 each |
| Steam Generator, with safety valve | 40-oz. | 2.00 each |
| Double Burner Oil Lamp Stove | 7 lbs. | 2.00 each |

Postage extra

**A. G. WOODMAN CO., Grand Rapids, Michigan**

## TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612.
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60-pound Cans, giving quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

"falcon" **IT MEANS** "falcon"

**Simply This:** We have got to "carry on" with all our might and with more "pep" than ever before. You are urgently requested to prepare to do your part when the time comes to "carry in" the enormous honey crop for which we must prepare.

PREPARE IN THE RIGHT WAY BY ORDERING EARLY

This will save time, money and honey, and will be gratifying to your ambition to help your country and fellow citizens. Let them have a good quality of honey and lots of it. **You Can Do It.** Get the goods that you are going to need and have them ready for the beginning of the season. To make this more of a saving to you, we are giving an **early order cash discount of 10% for shipment prior to December 1, 1918.**

**Use only the goods that are tested and known to be the best and most reliable; therefore, "falcon" goods will give the best results. Our goods are made by experienced and interested workers. This is the reason we are known in every land.**

SEND THAT LIST OF REQUIREMENTS TO US AT ONCE FOR PRICES
Catalog and "Simplified Beekeeping" on request

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Best Beehives Come From**

**HONEY WANTED**

We are in the market at all times for unlimited quantities of Honey, both comb and extracted. Before selling your crop let us hear from you, quoting your lowest price, either f. o. b. your station or delivered Cincinnati. If extracted, mail sample and state how it is put up. If comb honey, state grade and how packed.

**C. H. W. Weber & Company**
**CINCINNATI, OHIO**

**TENNESSEE-BRED QUEENS**

**46 Years' Experience in Queen-Rearing**
**Breed 3-Band Italians Only**

| | *Nov. 1 to May 1* | | | *May 1 to June 1* | | | *June 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 | $1.00 | $ 5.00 | $ 9.00 |
| Select Untested | 2.00 | 8.50 | 15.00 | 1.50 | 7.50 | 13.50 | 1.25 | 6.50 | 12.00 |
| Tested | 2.50 | 13.50 | 25.00 | 2.00 | 10.50 | 18.50 | 1.75 | 9.00 | 17.00 |
| Select Tested | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 | 2.50 | 13.50 | 25.00 |

**Capacity of yard, 5000 queens a year**
**Select queen tested for breeding, $5**
**The very best queen tested for breeding, $10**

**JOHN M. DAVIS, SPRING HILL, TENN.**

**We Offer**

Full colonies of Italian bees in a new 8-frame chaff hive for $15. Italian queens, $1.50. Nucleus colonies and bees by the pound.

Catalog of bees and supplies free.

**I. J. STRINGHAM**
**Glen Cove .. New York**

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

# What Would YOUR Bees Do?

***WILL YOU GIVE THEM THE CHANCE THIS MAN DID?***

---

Farmington, New Mexico,
October 24, 1918.

Dadant & Sons,
Hamilton, Illinois.

Gentlemen: Would be pleased if you would quote me your prices on working wax into foundation in 100# lots or more: Medium Brood, Light Brood, Thin and Extra Thin Surplus.

I have used considerable of your foundation and tested it with other makes, and I don't know why, but my bees will work on yours first. I patched a lot of drone combs last season and used your foundation along with some others, and yours would make lots the best job, and it is a fact that my bees would draw yours out and leave the other or gnaw at it, while I could see no difference to look at it.

A. N. NORTON.

---

Are your bees any different from those of Mr. Norton? Is the bees' preference for a certain foundation any different in New Mexico to what it is in Maine, or in California, or in England?

THEIR QUICK RESPONSE TO **DADANT'S FOUNDATION** SHOULD MEAN A LARGER PER COLONY PRODUCTION OF HONEY FOR YOU

***USE IT AND BE CONVINCED***

# DADANT & SONS

HAMILTON, ILLINOIS

MR. BEEKEEPER:

You Can Help the Work of Reconstruction

BY

ORDERING YOUR BEE SUPPLIES NOW

BY

Ordering Standard Goods, so as to enable manufacturing plants to increase production

BY

Wintering your Bees with careful attention to their comfort and safety

Get busy, now, and make up a list of your requirements. Take advantage of prevailing transportation conditions -- later on it may be more difficult to secure prompt shipment. Remember, every pound of Honey produced will release its equivalent of Butter or Sugar for other purposes of food.

INCREASE YOUR HONEY PRODUCTION

THE ITALIANS ARE OUR ALLIES

G. B. LEWIS COMPANY

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS U S A
MAKES THE FINEST

Watertown, Wisconsin

ORDER FROM YOUR NEAREST DISTRIBUTOR

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 12 HAMILTON, ILL., DECEMBER, 1918 MONTHLY, $1.00 A YEAR

# THE COTTON BELT OF TEXAS

## Notes About Beekeeping Conditions in the Black Land Region of Texas, Where Cotton is the Principal Source of Surplus Honey

By Frank C. Pellett

WHEN we speak of the cotton belt, we naturally think of that large area where cotton is grown as a staple crop. In this article, however, we mean the smaller area where cotton is the principal source of surplus honey, which covers quite a different section of the map of Texas. In general, this area approximates the extent of the black land prairie, commonly called the "black waxy" lands. But it extends beyond that belt to some extent, as cotton yields honey freely on other heavy soils. Beginning near the northeast corner of the State, a line running southwestward to the Brazos river would apparently mark the approximate eastern boundary of this belt. As mentioned in previous articles, the southern boundary is very definitely marked by the escarpment running east and west, between San Antonio and New Braunfels. Since we have in mind a special article on the behavior of the cotton plant, further consideration of that subject will be deferred for the present.

Within this particular area we find the highest developed agriculture of the State. The soils are rich and the climate mild. Cotton, corn, alfalfa, small grains and truck crops are all profitably grown. In few places do we find beekeeping highly specialized along with prosperous general agriculture, and Texas is no exception. Here and there we find a specialist who is producing honey on a large scale, but they are widely scattered. Nine in every ten beekeepers to be met in this area are enthusiasts who earn their livelihood at some other occupation. This does not necessarily indicate that honey production is unprofitable. In fact, it is probable that honey production is more dependable in some parts of this belt than in Southwest Texas, where beekeeping is a much more important industry. For some unaccountable reason, we find comparatively few commercial beekeepers in any rich land area where general farming is highly profitable. There are a few in this part of Texas who are conspicuously successful.

### Beemen of the Cotton Belt

Just at this point in the story, the writer feels very much like expressing his feelings, in very strong language, toward the photographer who spoiled a big batch of the pictures taken on the journey through Texas. Often the pictures can be made to tell more of the story than the printed words can do.

Even the start to visit this part of Texas was somewhat difficult. New Braunfels, the home of Louis Scholl, was the first place to be visited. With E. G. LeStourgeon for pilot, our party started early from San Antonio to drive across country . It was a balmy March day and the bees were humming on agarita. Before the outskirts of the city were passed we had a blowout that sent the tire rolling, and lost the rim entirely. One of the party, sent back along the road,

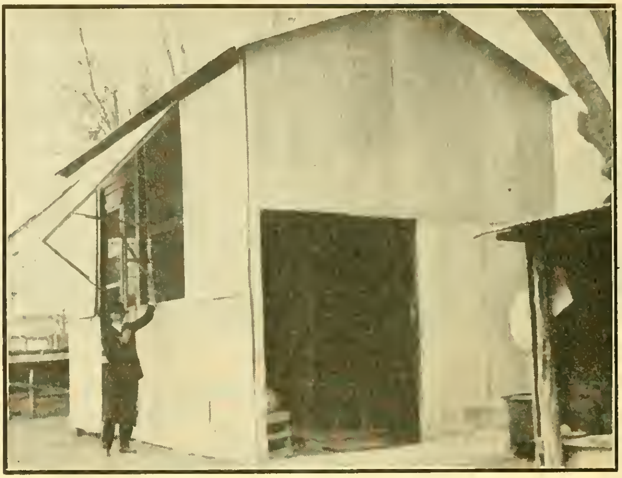
A group of Waco beekeepers.

chanced to catch sight of a small boy entering a house with the missing rim in his hand. With proper repairs, we made good time for another dozen miles, when the car suddenly came to a stop, and refused to be moved. Investigation revealed the fact that there was a broken rear axle, and New Braunfels 15 miles away. Everybody piled out, picked up his grip and started down the road. It was only a few miles to a small railroad town, and the last train for the day was nearly due. It was a good, stiff walk, but we made it just in time to catch the train. With a party three hours over-due and dinner getting cold, one could expect to find a nervous housewife, but Mrs. Scholl made the best of the situation, and her reception compensated for all the delays encountered.

Scholl has about fifteen hundred colonies of bees in 31 yards, which is probably the largest number under one management in Texas at present. In this section cotton yields nearly every year and is the source of the principal surplus of market honey. The apiaries are scattered in three directions from New Braunfels, those farthest out being about 25 miles in each direction.

Although within the cotton belt, mesquite is still an important source of honey for some distance north of New Braunfels. Horsemint is another important plant, which contributes much to the success of beekeeping all through the cotton belt. In favorable seasons a crop of honey is also secured from broomweed. This honey is a poor market product, being strong in flavor and yellow in color. In seasons when it blooms freely all white honey is removed from the hives, leaving the bees to fill their brood-chambers with this yellow honey for winter stores.

Mr. Scholl is well known as an advocate of the divisible brood-chamber. Most of his bees are in such hives, although he has a few in the Langstroth.


The Scholl honey house at New Braunfels.

Waco is in the heart of the cotton belt and one could not wish to meet a more agreeable throng of beekeepers than compose the local organization there. Commercial beekeeping is not largely followed in that section of Texas, but there are numerous persons who follow beekeeping more or less seriously as a side line. If space permitted, much could be told of the long field trip to numerous apiaries in that section, with several automobile loads of beekeepers forming a procession between apiaries, and an impromptu convention at each stop.

Cotton seldom fails on the heaviest black land in that section, but the nectar secretion is uncertain on other soils. Horsemint is the main stay for honey, however, in seasons following abundant winter rains, but little surplus can be depended upon when horsemint fails. Some seasons the average from horsemint in commercial apiaries amounts to as much as a hundred pounds per colony. Mesquite was formerly common, but has about disappeared from the clearing of the land for farming purposes.

At Waxahachie we find cotton to be the principal source of surplus, with horsemint also important. On the upland there is so little to be had, until the cotton begins to bloom, that the bees have to be fed to build up for the cotton flow. Cotton begins to yield about the 20th of June. Near the streams there is a great variety of honey flora from early to late, so that there is a long, slow flow. Swarming begins in April. As mentioned in our October number, T. W. Burleson combines the selling of package bees with the production of honey. Since he has no surplus flow until near the end of June, he finds it greatly to his advantage to sell bees early and produce honey later in the season. In this way he has been able to sell more than three thousand pounds of bees and thirty thousand pounds of honey, this season.

As Waxahachie is situated in the natural gas region, Burleson has a most satisfactory arangement for heating his honey house. The building is insulated, and fitted up with pipes for heating. It will hold about thirty thousand pounds of honey, and by keeping a steady temperature of from 85 to 90 degrees, there is no granulation of the honey in storage. Heating with gas requires a minimum of attention and costs about $12.50 per month.

In the country about Roxton and Paris, sweet clover is an important source of honey. This, in addition to horsemint and cotton, makes a favored region for honey production. In this section we find more beekeepers, and honey production is more of a specialty than a side line. Unfortunately, a heavy rain prevented us getting out to the apiaries here. The only apiary visited was that of H. D. Murry, who recently moved here

The Scholl apiaries are arranged with hives in groups of five

One of Judge West's apiaries at Waco, Texas.

from his former location at Mathis, in Southwest Texas, because of the continued drought in his former place.

Murry is a giant, physically, and gives one the impression of being as big in heart and soul as in body.

To meet a lot of beekeepers like those at Roxton, and then have it rain, so that it is impossible to get to the apiaries and see how they do things, is quite a disappointment. But after the dreary drought of other sections which had so recently been visited, rain seemed like a most desirable visitor, after all.

## California Weather and Prospects

It is now Columbus Day, or, as we call it this year, Liberty Loan Day, and the weather is unusually hot for the season, it being 78 degrees as I write this, in the coolest room in this modern cement-covered house. I presume it is nigh 90 degrees without.

Since my previous letter, we have had great growing weather, with but one or two light sprinkles of rain, really not what we should have had for best results, But as it is yet early, it is likely that seasonable showers will come to boost the growing grass and other herbage.

The early rains have started rather abnormal conditions in the vegetable world. Too many fruit trees of various sorts, as well as some deciduous flowering plants, have been bursting into bloom thus early; they should not, ordinarily, until spring. This abnormal condition may be detrimental to next year's fruit crop.

Grass is higher at this time than it was early in March. With more rain soon, there will be fine pasturage for stock all through the winter, something that does not happen often, as the early frosts of November give the grass that starts the first of October a decided set-back, usually. This happy early starting of the cow feed also gives an impetus to the bee forage plants. In a few places I have already seen alfilaria in bloom this week; there will be a plenty of it in bloom in a week or two. The blue-gum (eucalyptus globulus) is showing a heavy crop of flower buds. Some red-gums are still in bloom and they may start a second crop right on the heels of the present inflorescence. White clover, which has been introduced here and is rapidly spreading, is making a fine growth and blooming. Goldenrod and asters are in bloom, and horehound is again coming into bloom and is plentiful in places, and so are several varieties of dandelions and thistles.

I notice that these rains have boosted wild alfalfa and many other honey-plants into new life, all of which will be beneficial for next year's honeyflow.

Bees are doing well.

W. A. PRYAL.

### A Letter From New Zealand

Our winter season is just over and at Canterbury it has been the most severe winter for 25 years. As far as I can ascertain, the bees around Christchurch have wintered well, excepting neglected colonies short of stores.

For the past two years we have had poor crops, but this year a good season is predicted. Already the willows are yielding well, which will help brood-rearing. Our main flow comes in December from white clover. So far, sweet clover, of which we read so much in the American journals, has not made its appearance in this country.

The honey market is booming in New Zealand, prices are high, while beeswax is very dear and scarce. Extracted honey brings 24 to 30 cents per pound at retail, while sections bring 24 to 36 cents.

E. WELSFORD,
Linwood, Christchurch, New Zealand.

### Black Bees Short of Stores

Those little German Black bees will all starve this winter, while the Italian bees will have plenty. I never saw so much difference. Men with black bees are all howling for sugar, while my bees have 50 to 100 pounds for each colony to winter on. It was of rather poor quality, so I left it on the hives.

J. F. DIEMER,
Liberty, Mo.

An impromptu field meet at a Waco apiary.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

| | |
|---|---|
| C. P. Dadant | Editor |
| Frank C. Pellett | Associate Editor |
| C. C. Miller | Questions Department |
| Maurice G. Dadant | Business Manager |

(Copyright 1918, by C. P. Dadant.)

## THE EDITOR'S VIEWPOINT

### Honey From Tobacco

We have been trying for several months to secure satisfactory information concerning the extent to which the bees work on the tobacco plant. So far we have found only a few references to it. Readers who live in the tobacco growing districts will confer a favor by writing us of their observations along this line. How often the bees get surplus from tobacco, the quality of the honey and any other information will be appreciated.

### Summer Disease of Adult Bees

The "Journal of Economic Entomology" (Concord, N. H.) for August, 1918, contains an article from one of the bee authorities of New Jersey, Mr. Elmer G. Carr, upon a disease resembling bee paralysis or May disease, which appeared in a few localities during the summer of 1917. The ground in the vicinity of the hives was covered with thousands of sick or dying bees, which collected in groups on slightly elevated objects, being apparently unable to fly. This disease decimated the colonies to such an extent as to render them of no value for honey production. The trouble was suggested to be **perhaps** due to an excess of consumption of pollen.

We noticed a condition similar to the above in our home apiary at Hamilton, one Sunday afternoon in the month of June of the present year. Nearly all the colonies seemed to be affected. But during the evening, most of the bees managed to crawl back to their hives, and the next day there was no trace left of the trouble. These extraordinary circumstances are called to the attention of men who think there is nothing more to be learned in beekeeping. Our scientists will probably sooner or later learn the cause and cure of such troubles. But additional investigations must be made by all interested.

### Wintering Bees in Cellars

We have before our eyes a very good Bulletin (No. 1014) on the above subject, by our active Government apiarists at Washington, Messrs. E. F. Phillips and Geo. F. Demuth. If there is occasionally cause for complaint of official inefficiency, it must be acknowledged that our industry has a few good men at Washington, and that, in their case, at least, the "in" may be cut from the word, for they prove more and more efficient as time passes.

It is not yet too late for those who winter their bees in cold countries to send for this Bulletin. They will find in it many good suggestions. The ground is well covered.

It will be noticed that the authors speak of a temperature of 50 degrees as most satisfactory. In our experience with several cellars during some 15 years of practice of cellar wintering, we have found 40 to 45 degrees the point at which bees were the quietest. But the degree will vary at different spots and different heights in a repository of this kind. We placed the thermometer near the door, where it was the easiest to control, at the height of the eyes, against the wall. Perhaps 50 degrees would have been reached in the middle of the cellar or between hive rows. To our mind, the best criterion is the quietness of the bees. Find at what degree they are quietest and keep it at that. They should be disturbed as little as possible.

### The Beemoth in Texas

The Texas Agricultural Station at College Station issued a Bulletin, No. 231, on "The Beemoth," by F. B. Paddock. It is an exhaustive pamphlet on the subject and treats of the natural history of the insect and of the methods of control. We want to assure Professor Paddock that the three generations produced annually by this insect "in the extreme southern part of the United States" are also produced as far north as Illinois.

The only advantage that the North has over the South in regard to moth ravages is that the winter kills the eggs and the live insect, whenever they are not protected in colonies of live bees or in warm houses.

The beemoth is certainly worthy of all the attention that it receives, even if we know that strong colonies have nothing to fear from its ravages.

### Honey Versus Sugar

The present scarcity and high price of sugar is a reminder of the gigantic consumption of the latter, while at one time **honey** was the only sweet food known to man. Honey was thought to have been used in the food of the gods, as well as in their beverage, or nectar, which was said by Homer to be made of red wine and honey. For that reason, the sweet exudation of the blossoms which the bees gather is still known under the name of "nectar."

Pliny, who is said to have died in the eruption of Vesuvius which destroyed Pompei, speaks of "a substance resembling congealed honey which was produced by a cane grown in India and Arabia." Strabo, the Greek geographer, living before the Christian era, wrote in his fifteenth volume of geography, of a "reed which produces honey without the help of the bees."

But sugar did not get into common use until after the Crusades, in the early years of the 13th century. The companions of Godfrey of Bouillon, the leader of the First Crusade, took notice of the sugar cane used in Syria, but as it was thought impossible to cultivate it in Europe, owing to the coldness of the climate, they concluded that the precious plant, producing this honey-like substance, was purposely intended for the sole use of the "Promised Land" which had given birth to Christ. Albert of Aix, one of the ancient historians of the Crusades, reported that the sugar cane was of great use and relief to the Christians during the famines which they had to withstand, while they hopelessly tried to redeem the Holy Land from the Saracens, whose descendants have held it to the present time.

The evidence of the origin of sugar as an "Indian Salt" is to be found in its name. To reach its origin, we must trace it back to the Tibetan "sa-kar," a white dust. The making of sugar evidently began there.

The first cultivation of the sugar-cane in Europe was in Spain and in Sicily. In this island it was introduced under the orders of Frederick II, Emperor of the Roman Empire, in 1230. The Spaniards, after the discovery of America, brought the sugar cane to Brazil and to the West Indies.

However, in the Middle Ages, sugar was not of constant use anywhere, and, until the 18th Century, was kept for sale only by apothecaries as a medicament. In that century its production grew rapidly, and the export to Europe, from the Antilles, in 1745, was estimated at 137,000 tons.

The use of beets, for making sugar, was demonstrated first in 1605, by a French chemist, Oliver De Serres; then experimented upon in 1747, by Margraf, a German chemist; but the practical application of the discovery was not made until 1796. It was not until 1812, however, that beet sugar was produced of as good quality as cane sugar.

In the past 50 years, cheap sweets of commercial glucose have been produced in unlimited quantities, from starch boiled with sulphuric acid, and many cheap candies and syrups are made from this source, with the name of "sugars." It is a degredation of the higher sweets, the sugars from cane, beets or maple, to place corn glucose in the same class.

Honey, the nectar of sweet-scented blossoms, distilled by nature and carefully gathered by the fleet-winged bees, without artificial heat or reduction, without chemical mixtures, is as much above sugars as the latter are above corn syrups. The world is appreciating this fact and we see the proof of it in the present soaring prices of honey. Let us handle it with neatness and care, let us neglect nothing to keep its reputation where the experience of centuries has placed it.

## Large Hives

The lengthy article which we published in our previous number upon the above subject is bringing remarks and criticisms. Many people think that they have tried the large hives when they have used the 10-frame Langstroth hive. Indeed they have not. As we have shown, the 10-frame Langstroth hive is smaller in brood surface than the 8-frame Quinby. When we used the 8-frame and 10-frame Quinby side by side, as we did for a number of years, the result was the filling of as many supers of the wider size on the large hives as of the smaller size on the narrower ones, which made a difference of 25 per cent in the crop, in favor of the larger hives. This was almost invariable, though occasionally a colony in large hive with an inferior queen failed to keep up with the others.

Of course, both 8 and 10-frame hives are large enough if you pile the stories so as to allow the queen to lay to her full capacity previous to the crop. But with a hive of the size of the Jumbo it is not necessary to add to the breeding room by a second story.

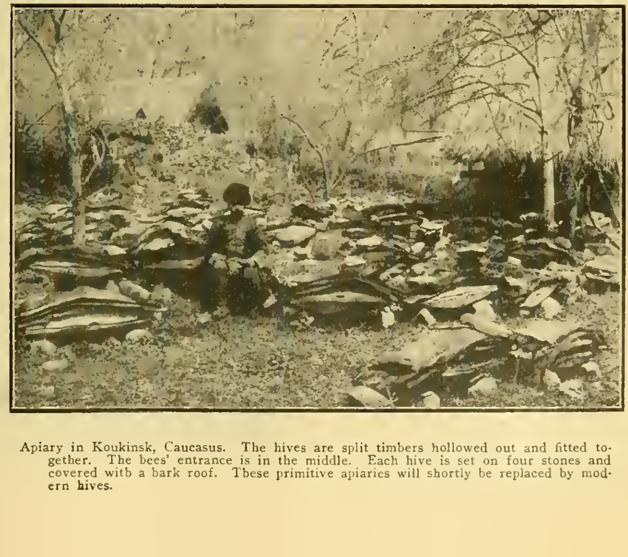
Some beekeepers assert that they have had queens fill 16 frames with brood. But if they make close examination they will find that the 16 frames are very plentifully supplied with honey and that 12 frames, Langstroth size, would cover the laying capacity of the best queens.

The advantages of the large hive system lie in less swarming and easier manipulations, in addition to the increase in crop results, provided your bees are reared at the proper time. The younger generation of Dadants are quite positive that an active beekeeper, with a Ford, can take proper care of a thousand colonies, scattered over several miles of territory.

A matter of some importance to the practical beekeeper who wishes to rear his own queens is to ascertain which queens are the most prolific and the best for honey production. This he is unable to do as thoroughly if he does not provide the bees with sufficient breeding space to develop the power of the best queens to its full extent. The large hives help in this.

If tests are made of small hives and large hives, side by side, they must be on a scale sufficient to avoid passing judgment on possible exceptions. Otherwise you are in the position of the apiarist mentioned in the previous article, who considered 8-frame hives as too large and stated his preference for 4 to 7 frames.

In all things one must also use judgment and discretion in management. Some one asked a celebrated painter what he mixed with his colors to give such beautiful effects. His reply was, "Brains."



Apiary in Koukinsk, Caucasus. The hives are split timbers hollowed out and fitted together. The bees' entrance is in the middle. Each hive is set on four stones and covered with a bark roof. These primitive apiaries will shortly be replaced by modern hives.

# THE PALMETTOS OF FLORIDA

## The Palmettos Furnish the Finest Honey in Florida and in Favorable Seasons Yield Abundantly. Honey From this Source is Seldom Reported Outside of That State

Photos by Florida Photographic Concern

THE palmettos are the most conspicuous feature of the flora of the south half of Florida. The cabbage palmetto is a stately tree, while the saw or scrub palmetto grows more like the underbrush in northern forests. To the man accustomed to dense forests, the open, park-like growth of the palmettos hardly seems like woodland. The ilustration gives a good idea of the typical Florida landscape.

This group of plants is not important in America, outside of the State of Florida. A small area in lower Texas, about the mouth of the Rio Grande river, is covered by a species of palmetto closely resembling the cabbage palmetto, but it is thought to be a different species. An occasional tree is also found along the seacoast as far north as Charleston, S. C. They are to be found also as street trees in various southern cities along the gulf coast and in South Texas. The small saw palmetto (*Serenoa serrulata*) also extends its range into Georgia and the Carolinas, in open pine woodlands.

In Florida both forms are sufficiently abundant to furnish nectar in quantity worthy the attention of the commercial beekeeper. However, in too many localities there is little else available, so that the season between flows is too long to make beekeeping worth while. To take advantage of the palmetto flows and at the same time get good crops through the rest of the year, the late O. O. Poppleton praticed migratory beekeeping. His apiaries were moved several times during the year, so as to be near different sources in the period of bloom. The great drawback to beekeeping in Florida is the lack of a sufficient variety of honey plants in one location to support the bees profitably throughout the year. There are a few localities, of course, where this does not apply.

### The Cabbage Palmetto

The cabbage palmetto (*Sabal palmetto*) gets its name from the cabbage-like formation in the bud at the top of the growing trunk. The tree grows twenty-five to thirty-five feet in height and has large fan-shaped leaves several feet long. It grows along the Atlantic coast to the north line of Florida, but in the interior is not found in abundance more than about two-thirds of the way.

The tree blooms during July and August, the latter date applying to northern parts of the State. The blossoms are very delicate and have been likened by Prof. Baldwin to a giant ostrich plume. According to his statement, the flowerets are sensitive to weather conditions. Too much moisture blights them, while the opposite extreme blasts the delicate bloom. As a consequence, it does not yield abundantly more than about one year in three, although at times it yields very profusely.

"On the St. Lucie river, Mr. Hill extracted, barreled and shipped 3,500 pounds of palmetto honey from 65 colonies in two weeks."—Page 489, American Bee Journal, 1899.

While palmetto honey is regarded as of very high quality, the honey from the cabbage tree is rather thin and requires some care in getting it properly ripened, as the following quotations will show:

"Cabbage palmetto honey, sealed or unsealed, will foam as though fermentation was in progress; that taken from the combs unsealed will ferment enough to deprive it of all honey flavor, but the sealed only foams. Thin and acid and amber in color, it will flow bubbling from the cells behind the knife, and it is not a rare thing to see gas bubbles under the cappings of the sealed cells. Whether the colonies are strong or

Bloom of the cabbage palmetto.

weak, it is always the same, when the bees work on the cabbage trees, as the common palm tree of Florida is called. The name comes from the fact that the bud in the head at the top is eaten in lieu of cabbage.

"The saw palmetto is decidedly different in the nectar it yields. Saw palmetto honey, even unsealed, may be called a good honey, and it is, too. When ripened it is a honey that makes a name for itself when enough care is taken by the producer to have it unmixed with other nectars.

"I write from personal experience on the east coast of Florida."—L. K. Smith, Gleanings, page 39, 1909.

### The Saw Palmetto

The saw palmetto (*Serenoa serrulata*), often called scrub palmetto, is a low growing, little palm, found on dry soils in the Gulf Coast region. In the southern portion of its range, in peninsular Florida, it attains the proportions of a small tree. There it sometimes reaches a height of 20 feet, with erect or inclined trunk. Further north the stem is almost invariably underground. Large areas of pine lands are covered with it.

The blooming period is April and May. O. O. Poppleton wrote concerning his calendar of the year:

Saw palmetto in bloom.

Cabbage palmetto in bloom.

"April—Saw palmetto flow comcommences early in the month and continues until last of May. Our apiary work these two months is extracting, building up all colonies and replacing poor queens."—Beekeepers' Review, page 11, 1893.

Concerning the honey from saw palmetto, we quote E. G. Baldwin as follows:

"The honey from saw palmetto is lemon-yellow in color, thick and waxy and of pronounced but delicious flavor. It is not quite so transparent as pure orange honey, but seldom candies, and makes a choice table article. Mr. O. O. Poppleton pronounces it the best honey in Florida, with the possible exception of tupelo. It is liked by almost everyone at first taste; is a trifle milder, even, than orange."—Gleanings, page 177, 1911.

Forest fires frequently destroy many square miles of the saw palmetto, thus removing this source of nectar for one year. However, according to Baldwin, the burned-over portions usually produce the most honey the following year.

Concerning the flow from palmetto, E. B. Rood, of Bradentown, writes as follows:

"We have been having the heaviest honeyflow from palmetto for ten years. One colony on scales brought in 50 pounds in four days, and 80 pounds in ten days. I expect 20,000 to 30,000 pounds. I have extracted 13,000 pounds now and am just starting on another round."—Gleanings, page 703, 1908.

---

**The Chicago Northwestern Beekeepers' Association** will hold their annual convention at the Great Northern Hotel, Chicago, December 10-11. A good program is being prepared and will be sent to anyone interested as soon as completed. JOHN C. BULL, Sec.-Treas.
Valparaiso, Ind.

## Fifty Years Ago

### On Wintering Bees

(American Bee Journal, Dec., 1868)

By R. Bickford

IT is settled beyond a doubt in my mind, by the experience of others as related in the American Bee Journal, and by my own experience for several years in the apiary, that bees, to winter well, must have sufficient ventilation to carry off the excessive moisture which accumulates in well-stocked hives. This moisture arises partly from the exhalations from the bodies of the bees, but mostly, I think, from the surrounding atmosphere, which constantly holds in suspense a greater or less amount of moisture, according as its temperature is higher or lower. The warm atmosphere of the hive is capable of holding a considerable quantity until it is condensed by coming in contact with the cold walls of the hive, at some distance from the cluster of bees. There it condenses, first into minute drops of moisture and afterwards, if the cold increases, into frost. The constant accumulation of the quantity, by repeated thawing and freezing, in a hive that has not sufficient means of ventilation, gradually encroaches upon the space occupied by the bees, finally reaching those on the outside of the cluster. These grow benumbed, cease to eat, lose their vitality, grow cold, the frost forms on their bodies and they die where they stand.

The frost continues to penetrate the cluster, if the cold weather is prolonged, until finally the last bees die covered with frost. The warm days of spring then melt this frost, and on examination, the whole mass of bees are found dead, and as wet as if just dipped from a basin of water.

I found one hive in that condition last spring. The entrance to this hive was left open, but the honey-board was left on tight, without any upward ventilation, as an experiment. All my other colonies wintered well on their summer stands, having their entrances open 3 or 4 inches wide and the front and rear openings in the honey-boards (half an inch wide and extending the whole length of the hive) uncovered, but the middle opening closed.

For the coming winter I have adopted Mr. Langstroth's plan, with some modifications. I shall omit the outside covering of the hive, believing it is better to have the hive of a single thickness of board, say seven-eighths of an inch, in order that the heat of the sun may easily penetrate it, and warm up the hive almost daily, thus giving the bees an opportunity to bring to the central part of the hive fresh supplies of food from the outer combs. This plan may lead to a somewhat greater consumption of honey; but if a swarm of bees gives its owner from 30 to 100 pounds of surplus honey in a season, as mine have done the past summer, he ought to be entirely willing to have them eat all they need during the winter. At all events, one of two things must be done, to winter bees successfully, in addition to their having a supply of food and thorough ventilation, they must either be kept in a repository where frost cannot enter, as a cellar, trench, ice-house or the like; or they must be put where the sun can warm them up occasionally.

I have removed all the honey-boards, placed two one-half or three-fourths inch strips across the frames, and covered the whole top of the frames with any old woolen garments that could be found about the house. There need be no cutting or fitting. Pack them in as you would pack a trunk, in the top box; two, three or half a dozen thicknesses will make no difference. The moisture will pass through as readily as the insensible perspiration of our bodies will pass through our thickest clothing. The hives will remain dry and the bees warm. I have no fear of losing a single swarm the coming winter, although several new ones which I bought, are quite weak, owing to the sudden close of the honey harvest a month earlier than last year, in consequence of the drought.

Seneca Falls, N. Y.

---

## The Argentine Ant

A LOUISIANA beekeeper writes to enquire how to rid his apiary of Argentine ants, saying that they have destroyed ten hives of bees in four months. This insect is a serious pest in the apiary and also interferes seriously with numerous other agricultural activities. Although, as yet, the area where it has become established is not large, it is sufficiently serious where it has become established to make it a matter of general interest.

The Argentine ant, as will be apparent from its name, is very probably a native of South America. It was first noticed in this country in New Orleans in 1891, and had probably been present for several years. It has become established in several places in California; in three or four counties or more in Alabama, in several counties in Mississippi, and over a considerable portion of the south half of Louisiana, as well as in one or two localities in the northern portion of the State. It is very probable that its spread will continue until it occupies all the Southern States, as well as the milder portions of the Pacific Coast.

The introduction of the English sparrow has brought a pest to our doors that is hardly worthy of consideration in comparison with the Argentine ant. It is usually first noticed from its invasion of the domain of the housewife. It is almost impossible to keep foodstuffs free from them, once they find their way into a house. In stores and eating-houses they become so annoying as to be intolerable. Syrups, cakes, candies, fruit are especially sought for, although they do not hesitate to attack raw meats and even cornmeal.

Cases are on record, in localities where they have become very abundant, where babies in their cribs have been annoyed to the point of distraction by the ants crawling over their bodies and into their mouths and nostrils. In some sections it has become necessary to set bed-posts in some kind of repellant in order to make it possible to sleep in quiet. Not until the insects have been present for a considerable time do they become sufficiently abundant to demonstrate fully all the disagreeable irritations which they are capable of inflicting upon the unfortunate neighborhood.

They sometimes remove garden seeds from the ground before they have sprouted, they damage the fig crop by boring into the ripened fruit and tunneling the interior, and they damage numerous kinds of blossoms by cutting into the unopened buds. They cultivate plant-lice and mealy bugs on various crops to a serious extent; they sometimes visit the nests of sitting hens in such numbers as to cause the hens to abandon their nests. They make themselves so generally disagreeable that land

Typical Florida palmetto grove.

values decline perceptibly in localities where they become established.

In the orange groves, along the lower Mississippi, in Louisiana, the damage has been especially serious. Following their introduction there was a rapid increase in scale insects. Within a year the effect can be seen on the orchards, within two years they are seriously injured and usually the third or fourth year they are ruined.

It is the effect upon the beekeeper, however, which is of first interest here. Fortunately, beehives, unlike orange trees, can be placed beyond the reach of the intruders. In most infested localities, as yet, it is possible by moving the apiary a short distance to find a spot free from annoyance, although the time may come when that is impossible. During the time of service as secretary of the Louisiana crop pest commission, Wilmon Newell made an extended study of the relation of the Argentine ant to beekeeping and other similar lines. Concerning the effect on bees we quote him as follows:

"The keeping of bees is well nigh impossible in sections heavily infested by the Argentine ant. . . . The Argentine ants are not only exceedingly fond of honey, but they attack the bee larvæ in the cells with a ferocity that is amazing. Thousands upon thousands of the ants will enter the hive, carrying away honey and attacking the larvæ. The bees themselves are unable to cope with such small enemies . . . In a few hours after the attack has commenced the bees become thoroughly disorganized and give up further defense, sometimes swarming out as a last resort. At such times the normal hum of the hive gives place to an entirely different note, which the experienced beekeeper will recognize as that of distress.

The difficulties of extracting and handling honey in the presence of these pests can be readily imagined. In order to extract, we first scrubbed the floor of the building, using copious amounts of carbolic acid in water. The foundations of the building and a space about a foot wide around the building were then sprayed with crude oil. The extractor, as well as the uncapping can, were placed in a large tray containing several inches of water. When all these preparations were complete, the supers were taken from the hives, and as fast as brought in were stacked on tables the legs of which were wound with corrosive sublimate ant tape. Extracting was done as expeditiously as possible, but with all our pains the ants were all over everything before we could extract and bottle three or four hundred pounds of honey. Even our clothing was teeming with the workers, and all human effort was helpless to keep them out of the honey."

About the only method of keeping bees in the infested regions is by means of placing them on hive stands with the legs in oil or some other repellant that prevents the ants from reaching them. In Newell's bulletin the following plan is described as successful:

"Blocks of wood are obtained, on which the legs of the bee-stand rest. Then the cover of a lard can or other tin box sufficiently wide when placed in an inverted position on top of the blocks will overlap the blocks of wood on all sides. A paste consisting of vaseline mixed with kerosene and red pepper is then spread thinly over the inside of the can or cover, and the ants will never be able to reach the legs of the stand and gain access to the hives. An advantage of this method is that the paste need not be renewed more than every year or two, and being protected from the weather it cannot be washed off."

It is quite possible to care for a few colonies of bees in some such way, but commercial beekeeping becomes unprofitable under such conditions and the best thing for the beekeeper is to seek a more favorable situation for his apiary. It may not be necessary for him to move them more than a few miles at first, and as the ants spread slowly he may not be again disturbed for years.

A democratic watering place.

## My Neighbor's Garden

By C. D. Stuart

"GUESTS for luncheon and not an egg in the house!" The Magic Girl's voice, full of trouble, came floating across the gulch.

"Two miles to the nearest grocer," I groaned, and bent lower over an open beehive without replying.

But the call was repeated. With a reluctant "Coming!" I replaced the hive cover, jumped over the dry creek bed and climbed to the road that curved round the base of the steep wooded hill. A sedate white hen eyed me curiously, picked her way to the other side of the road and disappeared in the shrubbery. The years rolled back. I was just a boy again on track of a stolen nest. No scruples deterred me, for was I not expected to furnish eggs for guests?

The hen pursued a zigzag course as though to throw me off her trail; but I easily followed the rustling of leaves as she scrambled up the hillside. A few moments later we emerged in a tiny open space whereon perched a house that resembled nothing so much as an overgrown beehive. Other white hens were walking nonchalantly about, and thus the chase came to a prosaic end in a neighbor's poultry yard, the existence of which an hour earlier I had never even dreamed. I had just decided to acquire the eggs by honorable negotiation, when I was accosted by my neighbor herself.

"Are you the beeman?" she asked, without preliminaries.

Taken unawares, I blurted out the truth. But afterward I comforted myself that while wearing bee veil and gloves and with the end of the hive tool in plain view above my hip pocket, a denial would have been useless, anyway. Besides, she hadn't given me time to deny anything, but ordered me to come and see what my bees were doing.

Prepared for the worst, I meekly followed. Round the corner of the house the air was thick with my honey-gatherers.

"Robbing!" I gasped.

"No, they're only thirsty, poor dears," chirped the old lady.

The suspense over, I felt weak and started to sit down.

"Not there!" my neighbor warned me, and gently lifted from the porch a dripping doormat covered with bees sucking the moisture from its fibrous surface.

"How long have they been bothering you?" I asked.

"They don't bother me," she declared. "I made up my mind when I saw them trying to get water after we had the cold snap in February, always to have it handy for them.

For brood rearing, of course! Strange I hadn't thought of it. I remembered now the bee books do say that water is necessary for diluting honey fed to young larvæ, and also for moistening the pollen.

"I had a picture made of that frozen hydrant to send east," she continued. Folks back there can't believe we have flowers and ice at the same time.

"And folks in California **won't** believe it," I rejoined, as I looked at the photograph which she brought out to me, then t the hydrant in the yard. The icicle (first in twenty years) leading to the ground, was now replaced by a board reaching from the faucet and resting in a bed of watercress. Nailed obliquely on the board were short slats to which the bees cling by their toes while drinking the water that constantly trickles in a thread-like stream from the pipe.

"Aren't you afraid they'll sting?"

Dear me, no;" she laughed. I've always lived among bees. Grandmother had them when I was a child. They packed the attic full of honey, and whenever she wanted any for the table or for a neighbor, she simply went upstairs and cut out a piece."

"I suppose she sulphured the bees in the good old-fashioned way," I commented.

"No, she didn't need to. They never bothered her, and she didn't wear your new-fangled contraptions for protection, either. Grandfather used to say the bees laid in extra stores just for her, so, of course, they didn't mind when she took it."

"Did you ever keep bees yourself?" I queried, as she calmly adjusted the drip to accommodate a thirsty arrival.

"None except yours," she replied. "They know where to come when the creek dries up. They don't drink much, but they need it reg'lar."

As I examined her numerous devices for the accommodation of my bees, I decided that they needed water not only "reg'lar," but served in a variety of styles. On a bath towel hung out to dry, many bees were gathered; others were holding a kind of caucus on a flower-box where the water had seeped through the cracks; still others preferred the trough used by my neighbor's cow, much to the annoyance of that patient animal. But my eyes kept coming back to the hydrant. There delegates from the different hives gathered in democratic convention. Not that I felt any desire to eavesdrop. Bees with a sense of justice would scarcely spare the man who had made no provision for the quenching of their thirst, thus exposing them during a long dry season to the exigencies of chance and of public charity.

Somewhere in the distance a whistle blew.

"One o'clock!" I exclaimed. I rose guiltily, and acquainted my neighbor with my real errand.

"A dozen eggs!" she repeated, aghast. "I've only two in the house, but I'll divide with you."

Duly grateful, I hurried homeward, my hand firmly grasping the isolated egg in the deepest corner of my pocket, and my mind busily framing a plausible explanation of the delay—my first domestic remissness. As I neared the door, I hesitated, conscience-stricken. "Hang it all, why does a hen cross the road, anyhow?" I muttered, impatiently.

Thus fortified by placing the blame where it properly belonged, I marched boldly in. The table was as usual—covers for only two.

"Our guests telephoned they were detained—a puncture or something," explained the Magic Girl, serenely.

So we didn't need eggs, after all.

"Hooray!" I shouted, and dropped into the nearest chair, quite oblivious of the muffled crash that followed.

Los Gatos, Calif.

## Results of Experiments With Variation of Demaree Plan for Swarm Control During Season of 1918

By W. J. Sheppard

THE variation of the Demaree plan that gave good results in the Kootenays in 1917 has been tried this season as well, and has again proved satisfactory, both from the standpoint of swarm prevention and the increased amount of honey obtained. The ordinary Demaree plan for swarm control, which is an excellent one and has many adherents, is as follows: Just before the colony is ready to swarm put all the brood, excepting one or two frames (two, I think, are best), in a second story, over a queen excluder, leaving the queen below with the two frames of brood, the vacancies at the sides being filled with empty combs, or, failing which, full sheets of foundation. Cut out all queen cells at the same time, if there are any, and search for and destroy any queen cells, on the eighth or ninth day afterwards, that may be found in the second story. The brood frames in the second story, as soon as the brood hatches out, will be used by the bees for storing honey. Add other supers above the second story as needed.

The following are the details of the variation of the Demaree plan referred to, by which a new queen can be assured to each hive every year: When the bees cover all the frames in the brood chamber, towards the end of May, find the queen and place her with two or three frames of unsealed brood in the center of a second story, over a queen excluder, adding empty combs, or frames containing full sheets of foundation, at the sides. Put in frames containing combs or full sheets of foundation at the sides of the brood combs left below. The bees will usually build queen-cells below the excluder, all but one of which should be destroyed on the eighth or ninth day afterwards. After the young queen has hatched below, and is mated and laying, the old queen can be removed. If she is provided with two or three frames of brood and put into a fresh hive on a new stand this will make a good nucleus. The old queen, however, can be left until the combs below are partly filled with brood. By this method, if carefully followed, it is scarcely possible for the bees to swarm, the old queen being above the excluder, with ample room for egg-laying. A powerful colony can by this means be built up in readiness for the honey flow in July, and a young queen assured to each hive so treated every year. After the old queen has been removed from the second story, queen-cells may possibly be built there. If so, these should be destroyed on the eighth or ninth day afterwards. A colony headed by a queen of the current year will not swarm, as a general rule.

Bees watering from the weekly wash.

As a further result of the experiments carried out this season, it was found that when the new queen excluder was used the bees, as a rule, would build queen-cells, except when a shallow super was put above the first story, and a second wire excluder over that, making it necessary to place the queen with the frames of brood in a third story of deep frames. But if an ordinary zinc excluder was used instead of a wire one, there was no difficulty in getting the bees to build queen-cells. It follows, therefore, that an all-wire queen-excluder is the best to use when the ordinary Demaree method is practiced, that is when leaving the queen below and queen-cells not required, but when she is put up into the second story, in the variation plan, a zinc excluder will give the desired results. Putting a shallow super between breaks up the colony too much, and is, therefore, not satisfactory. The freer communication through the wire excluder doubtless accounts for the bees not building queen-cells.

Neslon, B. C.

## Wholesale Transferring

By O. H. Gibbs

ON June 17, 1916, I purchased 56 colonies of bees in a miscellaneous assortment of boxes. Among them were several old styles of "patent" hives, and a few Langstroth frames, but in none were the combs built true. I got them cheap ($25 was the price paid), but had to move them about 10 rods at once. Some of them had swarmed and gone away, the people having hived but three or four in old boxes full of combs. Several boxes were split from top to bottom, showing heavy combs of honey. A large number were two boxes tiered up, and some were 4 feet high, with bees hanging out. I had no supplies, so the same day I went to one of the hive agencies and bought fifty 10-frame hives and forty shallow supers. I had foundation and got immediate delivery of some of the hives. I put men at work nailing them up and putting in foundation, full sheets, in wired frames. In the meantime I moved the bees, nailed the boxes that were tiered up together and then rolled them onto a wheelbarrow and wheeled them down into an orchard away from the house. Some of these hives were heavier than I could lift, so I literally rolled them and ended them over as needed. Several swarms were hived in the new hives and sections put on, after moving.

As fast as I got the new hives the boxes were turned on their sides and the top side taken off. Then one of the new hives with foundation was fitted on by nailing strips to the box-hive, these were watched and if the bees did not go up onto the foundation to work, a frame of brood was given from one of the new swarms, which by this time had some hives filled with drawn combs, honey and brood.

This started the bees to work at once on the foundation next the brood, and by spreading it all the foundation was soon drawn. By daily watching, the queen would be caught alone and a queen excluder slipped between the new hive and box, so keeping the queen in the new hive. Now I would open the box as much as possible to induce the bees to carry the honey above, at the same time giving a shallow super filled with foundation. This was the general plan.

Some of them I drummed up at once, but always putting a frame of brood so that the queen would remain and be contented. This method gave the quicker results and considerable honey was stored in the supers. Some were very persistent in sticking to their old boxes, so much so that I finally tore their boxes to pieces and smoked the bees up and set combs and pieces of box hives all around the new hives before they would carry out the honey. A few, after the queens were in the new story, raised new queens, but only three or four, of course. I did this work in the midst of the clover flow, from June 17 to the middle of July, but they still had some honey in a few boxes with combs exposed in September, when I cut combs out and placed at entrances, then they carried the honey out. I kept account of about 1,100 pounds surplus honey from this yard. At the end of the season (October) I cleaned up the wax, and have weighed 225 pounds of fine yellow wax. The bees were mostly pure black, although a few had an occasional yellow band. Some of these bees were fairly gentle and stayed on combs well. All of them were seemingly hustling, but some of them would go a mile to get a chance to sting. One of the first swarms I hived filled its hive, gave me 160 sections of fine honey and filled a shallow extracting super. The net increase was 8, making 64 colonies that go into winter quarters, and all heavy with honey, and most strong in bees. About 25 pure Italian queens were introduced during the transferring.

In drumming bees out of the boxes I used an old box in which sections come packed in the flat. This was light and high enough, giving bees plenty of room to get up away from their old home. Then, when all were up, I shook into the new hive, same as at hiving a new swarm. To drum out, I first smoked the bees, then turned boxes up with bottom open, setting old section drum box on top with openings together, then pounded with a club or hammer on hive, good solid raps, not hard enough to break combs, but to jar everything. I suppose bees think it's an earthquake by the way they hustle out. In from three to ten minutes practically all will be found out and clustered in drum box ready for hiving. I transferred a few of the best and straightest combs, but not many. As a rule it's cheaper to put in full sheets of foundation, and much better combs result. This yard was 17 miles from home yard and I used a Ford to haul supplies and to make the daily trips. I bred my own queens at the home yard.

Wapakoneta, Ohio.

## Rearing Queens in England

By A. H. Bowen

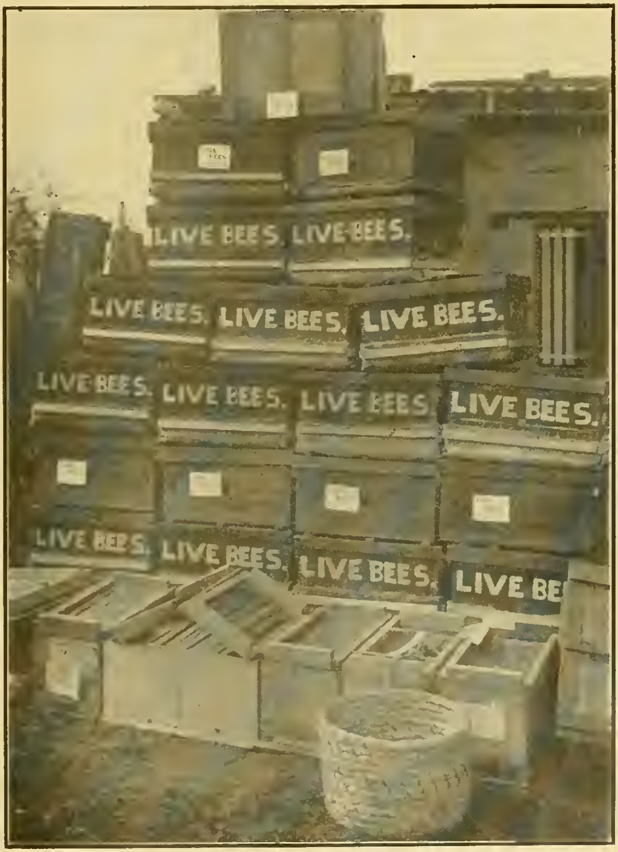
THE uncertainty of the English climate makes it necessary to modify the general system of raising queens to suit our needs.

The season is short and the duration of hot weather very uncertain. Without a fair honey flow, uniformly good results are difficult to get. Nevertheless, a trying climate is likely to produce queens with more than the usual qualities of hardiness.

The races kept are English blacks, Dutch, Italians and goldens; which to avoid crossing are divided into separate apiaries as much as practicable.

My preference is for the last three varieties, which show advantages over English bees, as we now find them.

The difficulty with natives in a queen-rearing apiary is that the


LIVE BEES. LIVE BEES.
LIVE BEES. LIVE BEES. LIVE BEES.
LIVE BEES. LIVE BEES. LIVE BEES. LIVE BEES.
LIVE BEES. LIVE BEES. LIVE BEES. LIVE BE

Traveling crates for live bees on combs. Note padded bottoms to insure safe transit.

queens being black are troublesome to find, and the frequent handling and periods of queenlessness develop an acute crossness of temper.

To this must be added their susceptibility to the Isle of Wight disease.

Dutch colonies are generally used for starting the caps, because more can be given at one time and the larvæ are lavishly fed.

Our cups are very slight and each one is attached to a cork, which connects it with the carrier, or cell-bar.

In this way they are easily handled, and the corks, when spoiled by the bees, can be cheaply replaced from time to time. For transferring the grubs nothing more elaborate is used than a common broad writing nib in its holder, or a quill writing pen is equally as handy.

A portion of an ordinary hive from which the queen is excluded by means of a queen-excluding dummy makes the best means for preserving the cells from the time they have been sealed over till nuclei are ready to receive them ten days after grafting.

Figure 1 is intended to show the construction of a simple type of hive for two nuclei.

Each division holds five or six combs, and both entrances face the same direction.

A stock with sufficient bees to cover 8 combs is used to populate two boxes at the commencement of the season.

The combs are gently lifted in—four into each division—and covered down with quilts. The portion without a fertile queen is given a ripe cell, and as soon as the existing queen has been removed a cell is inserted in its protector.

When the nuclei remain in the same position as the old colony there is no loss of flying bees, but after being given a week to become established they can be moved with but little loss.

Each nucleus properly cared for is capable of giving two fertile queens per month for the breeding season of June, July and August. In some late seasons mating results are quite good through September, when the month is warm and sunny; until lack of drones and the chill oncoming autumn brings operations to a close.

The time of cheap queens appears now to have gone by, since with better systems of harvesting honey it is the productiveness of a queen and not so much her cost that is taken into account.

Twelve years ago the bulk of queens were marketed under $1.25 each, but of late years parallel with the development of more approved methods and the production of a better class of queens has naturally come the higher price.

The call for queens is heaviest during July and August, as those beekeepers who make a practice of increasing stock or requeening yearly do so at this period—especially in the northern part of our country where heather abounds, and the practice is of giving a new queen to build up colonies prior to the late heather flow on the moors.

Reverting to nuclei management the disadvantage of having weak lots before winter is overcome in the following manner:

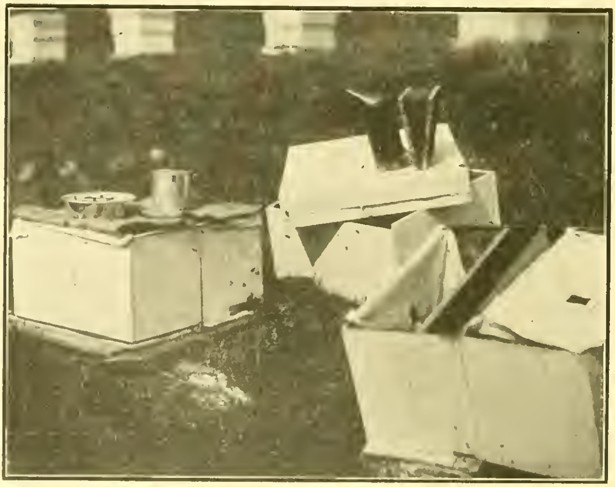
Assuming an apiary to consist of 20 full colonies and 40 nuclei on five standard combs each, half of the queens from the poorest colonies are removed.

Twenty queens taken from the nuclei are introduced in their place, and each pair of nuclei are united together in one hive to form a strong colony.

In concluding, I might add that between combs of yellow sainfoin honey in the Cotswold apiaries are hibernating prettily marked bees; the progeny of queens from far-off Texas.

They are golden bees of B. M. Caraway's strain and even in this wartime most of the cages with their living contents traversed the distance in safety.

Cheltenham, England.



An English twin nucleus hive.

## Reminiscences of Canadian Beekeeping

By J. R. Black

MY memory of beekeeping and beekeepers in Canada goes back a generation, for it was at the beginning of the 80's, in the last century, I began to keep bees. When I left the university, in 1875, I had a nervous breakdown which disturbed me chiefly in the prevention of sleep. When the medicine man had diagnosed my case he said, to my surprise, "Keep bees." I asked him, "Why?" He answered, "Keeping bees will take you out of your study, away from your books and give you a sun bath. For it is only when the sun is shining that you can handle them. And, besides, you will be so interested in them that you will forget your books, and the result will be favorable to your getting sleep." In a few days the doctor came with a colony from his own apiary and I made a beginning in beekeeping.

Forty years ago the late D. A. Jones was easily the most prominent apiarist in Canada. Jones was in Canada what Quinby and Langstroth were in their day in the United States. Not that Jones had anything like the inventiveness characteristic of the two Americans just named, for in the line of invention he left nothing perpetuating his memory. It is true he invented a hive having a frame 14 inches deep and about 10 inches wide, and later a hive called the "combination," the frame of which was simply the deep frame of the first turned on its side. Both of these hives attained a considerable degree of popularity, but for years now they have been back numbers. Jones also devised an uncapping knife which is still on the market and widely used. But if he didn't invent, he "boosted." His first big sensation was in a widely heralded 75,000 pounds of honey from Canada thistles. This was certainly a proud day for the much-despised thistle; but, alas! for the reputation resulting to the farmers of Beeton, the locality of the apiary where Jones' bees did such a fine piece of work. This result for a time furnished Jones with a text from which he undertook to urge on audiences, large and small, the importance of keeping bees to collect the honey not only from thistles, but from clover, basswood, buckwheat and the numerous wild flowers abounding in many sections of the country. The thing caught fire. The people were stirred deeply on the question of keeping bees, with such large possibilities as Jones was able to picture with the intake from thistles always, of course, in the background. For the next few years the demand for bees far exceeded the supply. Indeed, the demand did not require to be large to exceed the supply. For the latter was small. The would-be purchaser was practically confined to Canada. Shipments from the Southern States in nuclei and pound packages had not yet begun.

Mr. Jones, if not inventive, was certainly enterprising. He published a bee journal, and though his English in speaking and writing may not have been to the queen's taste, he generally succeeded in making himself understood, while his practical knowledge of all in his day pertaining to the bee industry gave to what he said and wrote, special value.

His big undertaking, however, was a visit to the East for the purpose of investigating beekeeping there, and to secure new races of bees for Canada, in case he met with any indicative of superior merits over those of our own native bees. These, he believed, he found in Palestine and the Island of Cyprus. From these countries he brought back a number of colonies whose progeny secured some popularity for a few seasons subsequent to their arrival. But in competition with the Italians, which had been previously introduced to America they eventually failed to make good. The Cyprians were irritable and struck out vigorously when disturbed, giving all who interfered with them far from agreeable reminders of their power of self-defense. I secured queens of both importations. I found that the Palestinians had nothing to recommend them over the Italians, while they were inferior as honey gatherers, and in prolificness.

The following story is told of Jones in connection with the Palestinian shipment of bees at Joppa. When the consignment arrived from the interior of the country the ship on which they were to be taken to the West lay out a distance in the offing. The space between the vessel and the shore had to be covered in row-boats. The time for the vessel's departure was near. Hence, if the bees were to go they must be placed on board the vessel without delay. The Arab porters knew the situation and united in a demand for much bigger pay or they would do nothing. The strikers stood by the freight and, through an interpreter, listened to its owner's appeals to take the colonies to the ship. But all in vain. Then an attempt was made to secure others. But the first gang would let no one touch them. At this juncture Jones seized a colony, and lifting it high, let it drop on the rough stones composing the pavement. The impact freed the bees, and they proceeded to make themselves felt by the recalcitrant porters, who fled in all directions, and left the owner free to engage other workers on fair terms.

At the beginning of the period under review, the bee diseases of later times were not at all widespread. Indeed, an attendant at a beekeepers' convention, though listening to all that was said, might not hear a word touching American or European foulbrood, black or sacbrood. American foulbrood was, doubtless, present and doing its destructive work before much was said or even thought of it. But wherever it projected itself it could not long be left to do its fell work in quiet. Later came the European variety, and in presence of these evils a remedy was sought. Many experiments were made before an effective cure was discovered. This became known as the starvation process. The application of it has greatly checked the spread of the disease and lessened the area of its operations. Mr. Todd, of British Columbia, would have us believe that the application of fire to a diseased colony is the only effective cure and makes bold to aver that owing to the sparing application of the red flame foulbrood is more prevalent than formerly. In this contention, however, he will find few supporters. Those seized of conditions, as they are, know that foulbrood, whether American or European, has greatly decreased in volume, relatively to the number of colonies, during the past 25 years. No doubt some credit in the improvement is due to the displacement of the native black bee by the Italian. For while the claim that a purely mated Italian queen will cure any colony infected with European foulbrood may be more than is warranted in the actual issue, it is certain that once such a stock appears in a clean colony its immunity in future is one of the things to be confidently expected.

In a comparison of beekeeping forty years ago and now, mention should be made of the increase in the number of colonies and the decrease of the number of those who keep them. In the early period bees were mostly kept on farms. The number of colonies kept by each person ran from three to thirty. They were kept in boxes to which there was no access, by their owners, once the bees had taken possession. No manipulation was attempted other than getting the bees to enter at swarming time, and smothering them by sulphur fumes to take the honey away. They might be queenless, storeless, preyed on by moths, or in process of destruction by disease—their owner knew nothing, and, of course, did nothing. This primitive method, however, had this advantage, it did not require much experience or time to keep bees; hence, many farmers kept them. If the income was not large, neither was the capital and labor invested. But, when with the invention of the movable frame, and the extractor, beekeeping entered the realm of the sciences, the habits of the beehive could be studied and the results utilized so as to secure the largest possible profit to the apiarist. Therefore to keep bees with a view to securing a satisfactory profit on the capital and labor invested required expert knowledge and time to be given to their management. Thus beekeeping passed into the hands of experts—men who owned from fifty to several hundred colonies, and who spoke of their honey crop in terms of tons instead of hundreds. Some of the farmers, to obtain like results, adopted the scientific method. Their bees, too, must be kept in movable frame hives, and the extractor displaced the sulphur and straining in the removal of the honey. Yet in this very change came disaster to beekeeping on the farm, for the average farmer had neither the experience nor the time to give proper effect to the modern methods, and his bees perished.

No change in Canadian beekeeping of the past half century is more marked than the Government's relation to it. During the first half of this period the beekeepers had to "paddle their own canoe." Those who presided over governmental affairs were content to leave the honey industry to private enterprise.

Ontario, Canada.

## The Italian Bee—History of Its Importation

By C. P. Dadant

THE Italian bee has long been known as a superior variety of the honey-bee. Our text-books quote Aristotle, Virgil, Columella, as having noticed, from 1800 to 2200 years ago, the greater beauty of this bee and its high quality and peaceableness. Spinola also, about 1805, mentioned it as superior.

But there is no evidence of any bee lover having tried to export them, until 1843, when Captain Baldenstein, living in his ancestral castle, in the Rhætian Alps of Switzerland, employed two men to carry a hive of them across the Alps to his home, from the Valteline, a narrow valley at the head of the noted Lake of Como. The distance was short, but it was across mountains inaccessible to the bees, owing to the perpetual snows. His failure to succeed in keeping the race pure was mentioned by him in the "Bienenzeitung." This called Dzierzon's attention to this bee, and a few years later, having had some correspondence with an Italian lady beekeeper living at Mira, near Venice, he requested her, in 1853, to send him a colony of those bees. It was then that the first success was achieved in the breeding of Italian queens, as Dzierzon, in the following autumn announced, at an Apiarian Convention in Vienna, that he had succeeded in rearing some 30 queens, fecundated by Italian drones.

There was great doubt expressed concerning the possibility of these bees degenerating in colder climates. There was also quite a discussion as to whether the race was positively pure in its native country. In the first volume of the American Bee Journal, January, 1861, George Klein states that black bees had been found by Deuss, in Nizza. But Nizza is no other than Nice, and is located in France. Those of our readers who have preserved the May, 1916, number of the American Bee Journal will find on page 159 a letter from Mr. Oreggia, a beekeeper of Liguria, explaining how the bees are slightly mixed along the narrow border of the Riviera, confined between the mountains and the sea. The bees of

Nice are black and the change from blacks to Italians is gradual from Ospedaletti to Genoa. North of these mountains the bees are pure Italian, as they are in the entire peninsula, owing to the sea and the snow-covered mountains which form the frontiers of Italy, except in very narrow valleys.

After 4 years of cultivation of the Italian bees, Dzierzon wrote: "This race of bees is still industrious, as beautiful and as docile, as it was the first season. Nay, in several of my colonies, as the result of careful breeding, it is even handsomer; because all the workers have now precisely the same color and markings. The queens are, for the most part, also brighter colored than the one I procured from Italy, as I invariably use the brood of the handsomest and most fertile queens for multiplying." He was evidently already following the methods of our breeders, who usually select the brightest queens for breeders. It is well, provided we do not neglect the other qualities which ought to be the first considered.

The first Italian bees that reached this continent alive were imported, from Dzierzon's apiary, in Germany, by Mr. Samuel Wagner, himself of German descent, in association with Richard Colvin, of Baltimore, in 1859. In 1860, S. P. Parsons, of Flushing, N. Y., imported the first Italian bees direct from Italy. These were imported in full colonies. Wm. G. Rose and Mr. Colvin a little later made additional importations from Dzierzon's apiary, and so did Mr. Langstroth in 1863 and 1864.

Adam Grimm, of Wisconsin, was the first man to import largely from Italy direct, or rather from Italian Switzerland. In 1867, he went to his birthplace in Germany, visited Mr. Dathe, an expert in the cultivation of Italian bees, at Eystrup, near Hanover. He had brought with him a couple of nuclei hives of American-bred Italians, which when compared with the German-bred Italians were found to be equally beautiful.

In his letters to the American Bee Journal, published in that year, he narrates how, in traveling from Germany, through Switzerland, to Italian Switzerland, he passed through a region in which no bees could live. He wrote:

"I may remark here that while crossing the St. Bernard, I made constant inquiry about bees, and found the last of the black race at Zising. A stage of 4 hours brought us to Splugen, where I was told there were no bees, the climate being too cold and rough for them. After another stage of 4 hours we reached the summit of the road across the Alps at this pass, and saw a peak elevated only about 300 feet higher, covered with perpetual snow. Vegetation was sparse at the foot of the mountain and along the roadsides; and I am well convinced that no swarm of bees ever voluntarily passed across this mountain chain. After a brief detention on the highest point, we began to descend, and in 5 hours reached Bellinzona, situated about 3 miles from Lake Maggiore."

His purchase of bees was made from Professor Mona, a noted writer on bees and extensive beekeeper, at that time, of Italian Switzerland. Grimm's letters from there confirm the fact already known that the Italian bees in their native country are not so bright in color as the foreign-bred. He wrote:

"On my remarking that the darker queens would be pronounced impure in Germany, Professor Mona and Mr. Uhle, a German from Hanover, laughed and said the yellow queens were the exception, the darker ones having the normal hue. . . In Germany, however, the brighter queens are preferred, though Mona himself was of the impression that these are really not so hardy or long-lived as the darker. When I observed that some German apiarians alleged that the Italian bees are not altogether pure, even in their native land, but that, there, too, black bees were occasionally found, he offered to carry me around among the neighboring farmers in a circuit of several leagues, and promised to give me a dozen queens if I succeeded in finding a single living black bee in all their stock. I accepted the offer, rather from curiosity than from any expectation of success. Between 9 o'clock in the morning and 10 o'clock in the evening we visited a number of apiaries and examined the bees, without detecting the least variation in color or finding a single black bee."

One hundred Italian queens were brought over at that time, by Grimm. Five years later, Chas. Dadant made a special trip to Italy for the same purpose. He failed in bringing more than 20 queens alive. But he there learned the essentials of transportation. In 1874 he secured some 400 queens from Giuseppe Fiorini, of Monselice, near Venice. Thereafter importations were regularly made by himself, A. I. Root and numerous others.

Honey proved less healthy, as food in transit, than sugar syrup or candy, although the light grades were not injurious. The dark honeys almost always caused diarrhea in the bees in transit. Very young bees did not prove as hardy as the active field bees, though the younger bees among the latter are best. Low temperatures, below 60 degrees F., in spring or fall, caused many a package of bees to die from chill. Lack of air is also a stumbling block, when bees are confined for a week in one spot in mail sacks. To import bees safely, there ought to be interoceanic regulations directing them to be kept in some special repository, as live animals.

Water, which some people assert is indispensable to bees in summer, is entirely unnecessary unless they have brood, or unless the food supplied is too dry, such as hard candy or dry sugar. Pollen is decidedly injurious, especially if floating in the honey supplied for transit, as it loads their abdomens unnecessarily.

Although the Italian bee is now very common in the United States, it will be advisable to continue importations, in order to renovate our stock and maintain in our bees the high qualities of the original Italian bees.

Colonies in the open of same strength average about one more super than those in the shade. Apiary of Chas. Macklin, Morrison, Ill.

## Another Short-Food Christmas

By Mary G. Philips

MERRY Christmas! What visions and memories that greeting immediately brings up! Different memories for each of us, to be sure, and yet with a golden thread of similarity running through the fabric of the dream of our past American Christmases that makes our hearts warm whenever we hear the familiar words, "Merry Christmas!" We all have in common, of course, the marvelous Christmas odors—the smell of Christmas trees and greens lining the streets outdoors, and the spicy smells one catches in whiffs wherever a house door is opened. For weeks before the festival those fragrant indoor odors of gingerbread, fruit cake, mince meat and cookies are apt to be met with upon entering any friend's house, and they always cause a little happy lift of spirit because they mean that Christmas is coming. Then there is the atmosphere of secrecy and tissue paper permeating everything for at least a month before the great day, and the last minute shopping in a good-natured, shoving, jolly crowd, and the carrying of parcels, all glorious in ribbons and holly, and the trimming of the Christmas tree, speaking in subdued voices so that the children will not waken, and the filling of the stockings, and the last weary, but joyous "Good night! It's almost Christmas Day now!" And then, as if one hadn't had happiness enough in getting ready, comes Christmas Day itself!

The early morning service is very solemn and beautiful, and as the old hymn rings out "Hark! The Herald Angels Sing!" you thrill with thankfulness for the Baby born in the manager. Service over, you hurry home through the crisp air, wondering how mother is managing without you, and whether Aunt Sue, who is bound to be early, has come yet with her four boys. They have, and are soon followed by the proud parents of the newest baby in the family, and all the other aunts and uncles and cousins, until the house is full of happy chatter. But the crowning moment is when mother, all flushed from making the gravy which she will trust to no one else, announces, "Dinner is ready, folks!"

With shining eyes, the children beam at the table, trying to take in all that it holds—turkey, baked ham, mashed potatoes, sweet potatoes, stewed tomatoes, boiled onions, oyster sauce, several kinds of jellies and preserves, celery, cold slaw, mince pie, plum pudding, raisins, nuts and—that's all! It's enough, isn't it? Even the boys of the family are filled for once in their lives, and sit around feeling uncomfortable for part of the afternoon when the big folks have settled to cigars and pipes, embroidery and knitting.

But these were the Christmases of long ago, before the war, when we never dreamed of war, and famine and pestilence could stalk over our earth and lay it waste. This, another short-food Christmas, must of necessity, be a very different celebration, and yet we must keep the bright, joyous Christmas spirit there. We **can** do it—the French have drunk the very dregs of suffering in the last four years, and yet they took each new war hardship with a marvelous buoyancy of spirit, a contagious gayety that changed it into a joyous adventure. With the same high spirit—in spite of the absence of our boys abroad, in spite of a shrunken family circle, in spite of the lessened family pocket-book, let us play the game for all that it is worth, and celebrate Christmas joyfully! During the past year we have given, and given and given, not only for the Liberty Loans and the Red Cross and the Y. M. C. A., but for the many relief funds to help our stricken allies, so that we have nothing left for Christmas presents! That is as it should be, and you should be proud to say to your friends, "All I have above my bare living expenses has gone to help the great cause, so let us not exchange gifts this year." Anyone who gives a Christmas gift to any but children or the needy this short-food Christmas is a **shameful slacker!** We women have been far more guilty in the matter of useless Christmas giving than the men, and it is generally the women who decide about the exchange of presents. It is to be hoped that having learned the lesson of giving to those in need, will never revert to the barbarous custom of making Cousin Nan a jewel case because last Christmas she embroidered you a traveling case—the fact that she has no jewels, and that you never travel having no connection with the choice of gifts.

As for the Christmas dinner, let us keep the family reunion by all means, remembering to invite as many soldiers as can squeeze around the table, even though an elbow or two may be poked into Uncle Amos's portly sides. And then then let us not spoil the day by serving a dinner that we would be ashamed to have Mr. Hoover see us eating. Turkey is good, but suppose you live where game is plenty and there is a gun in the family? Shall you eat turkey, or let someone else have it who cannot get game? Venison steak, when well cooked, is delicious. It needs at least three minutes longer cooking than beefsteak, but is generally prefered rather rare. Roasted rabbit is very good, stuffed with a dressing of salt pork, minced onion, and bread crumbs seasoned with pepper and salt. The body is sewed up and covered with a few thin slices of pork to supply the fat lacking in rabbit. Roast one hour, making a gravy with the liquid from the pan. Wild birds are roasted in the same manner as chicken, but all lack fat, so need basting frequently to keep them from drying out.

The vegetables for the Christmas dinner this year should, of course, all come from the home garden, or if that is not possible, then from the country near. Every time anyone living in Maine uses California raisins, or Louisiana pecans, freight space has been used unnecessarily. The ideal Christmas desserts are mince pie and plum pudding, and fortunately both may be had without hurting our Hooverized food conscience. The pie crust should, of course, be made of other flours than wheat, a mixture of corn flour and barley being specially good with mince meat. Here is a recipe for mince meat endorsed by the Food Administration:

### Green Tomato Mince Meat

2 quarts green tomatoes.
1½ cups sorghum or honey.
1 pound seeded raisins.
¼ cup citron.
1½ pounds chopped apples.
¾ cup chopped suet.
1 tablespoon salt.
1 cup cider vinegar.
2 teaspoons cinnamon.
1 teaspoon cloves.
1 teaspoon nutmeg.

Chop tomatoes or run through meat grinder, using coarse blades, and drain off juice. Cover with cold water and let come to a boil. Scald for half an hour and then drain thoroughly. Repeat until the tomatoes have been boiled three times. Add all ingredients except spices, stir well together and cook until thick. When cold add spices and stir thoroughly. Heat and seal in glass jars.

The plum pudding made every year in one Ohio family, long before we thought of food conservation, is, however, made from a recipe which would meet with Mr. Hoover's approval, particularly if barley or corn flour be substituted for the white flour given.

### Aunt Annie's Plum Pudding

One pound each of raisins, currants, flour, sugar, chopped suet, grated bread crumbs and grated carrots. Spices added to taste. Mix dry grated bread crumbs and grated carrots. Put into bowls, tying cloth over the top. Immerse in boiling water and boil at least 8 hours. (This is best made on ironing day, if a coal range is used, so that fuel need not be wasted.)

For little Christmas cakes, the following are good and do not use one bit of flour, unless honey be used as the sweetening, then a little of some kind of flour will be found necessary to hold them together:

### Cocoanut Macaroons

½ cup of oatmeal.
½ cup of cocoanut.
Whites of two eggs well beaten.
Pinch of salt.
1 cup of sugar.

These should be stiff, dropped from a spoon in small bits the size of a walnut and cooked about ten minutes in a hot oven.

Washington, D. C.

## Ivy Poisoning Again

Soon after replying to "Missouri" about a supposed case of "Rus" or "Ivy" poisoning I had four successive cases, and tried a new remedy which acted like magic in all, the worst case, on back of hands and forearms, terminating favorably in three days.

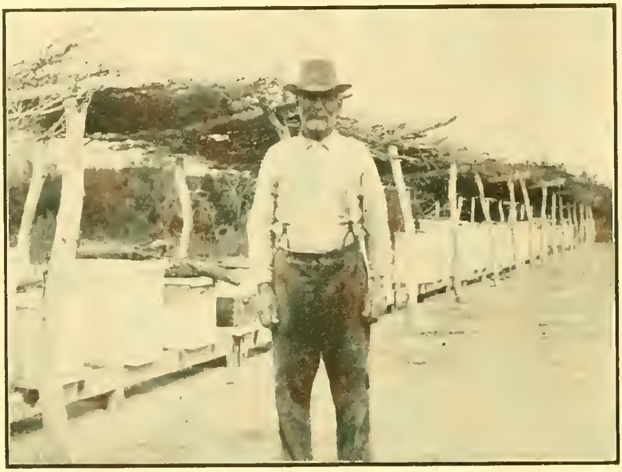
One case involved half the side of the head, including an eye; yet the patient was free of pain and swelling in 55 hours.

The formula: Tincture iodine (N. S. P.) 3 drams. Tincture camphor (new formula U. S. P.) 3½ ounces. Mix and apply hourly.

DR. BONNEY.

Buck Grove, Iowa.

# BEEKEEPERS BY THE WAY



Geo. Schmidt of Crystal City, Texas.

### From the West Texas Desert

On the banks of the Nueces river, not far from the little town of Crystal City, Te..as, lives George Schmidt, one of the most successful beekeepers of that region. Schmidt lives all alone in his little house on the river bank. On each side of the house is a well-kept apiary. The one shown in the picture has no natural shade, and an artificial one is provided. The other one is in the shade of trees growing along the river bank. The ventilated honey house, situated between the two apiaries was shown in the November number of this journal.

At the time of the writer's visit, the drought had been so severe and so long continued that the cactus and much of the tree flora had died, yet Schmidt had secured sufficient honey to keep his bees in good condition, with a small amount of surplus. He is a rare combination of naturalist and beekeeper, with a wonderful fund of information concerning the natural history of the region in which he lives. Not a house is in sight of his apiary, except his own, and the country roundabout is still in the wild. A day with him is one full of interest and long to be remembered.

# BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

### Moths

I bought a swarm of bees in May. Yesterday I looked at them and they are alive with worms; some of those worms are two inches long. Why did these bees let anything like that live in there? I cannot find any queen. Do you think this swarm was sent me without a queen? I am sending now for one.

I have read my beebook and also read everything in your paper, but cannot see where anything so awful as this has happened anywhere. Have Dr. Miller answer me by mail, and if there is any charge let me know. If I get a queen will she see to it that those terrible worms get out? I killed a moth miller in the upper super. I do not think I have more than a quart of bees. If I have enough honey will they pull through the winter? I will also send you a sample of the mess they have made, and one of those worms. I am a new hand at this, so anything you can tell me will be very much appreciated.

When I get the queen shall I put her right in the middle section, right on the comb? MRS. J. EATON.

A beginner in beekeeping who sees the ravages that can be made by the beemoth when it has things mostly or altogether its own way, is likely to think that the moth is entirely responsible for the trouble, and that there would be no trouble if there were some way of keeping the moth away. If one utterly without experience were for the first time to see the carcass of a dead cow being devoured by birds of prey, and then by maggots, such a one might say, "too bad that the crows and maggots have ruined that fine animal," while all the while something else has caused the death, and the crows and the maggots have only come in as scavengers to clean up and make the air at least a little less offensive.

It is somewhat the same way with the beemoth. When you have a strong colony in good condition there is hardly more fear it will be destroyed by the beemoth than there is that a vigorous animal will be destroyed by crows. But let a colony become queenless or weakened in any way, so that it can no longer defend itself, and the moth will take possession and your fine combs will become a mass of webs. There is, indeed, this difference between the crows and the beemoth, the latter does not wait for the death of the colony, but in most places it is on hand at all times ready to attack wherever it can. Indeed it seems rather mysterious how it can gain entrance even into strong colonies, for it is a common thing for those who work for section honey, especially with certain kinds of bees, to find some sections more or less wormy after being off the hive and kept in a warm place for two or three weeks.

Yet a strong colony of Italian bees may be considered capable of taking care of itself, all the harm the beemoth can do it being a negligible quantity. That word "Italian" is used advisedly, for Italians are much better at fighting away the moth than are blacks.

Plainly, then, from what has been said, the remedy against the beemoth is to have all colonies strong and of Italian blood. A queenless colony is a thing especially to be avoided, both because it is likely to become weak and because queenless bees are likely to become so discouraged as not to defend themselves vigorously.

Although no attention need be paid to strong colonies of good Italian blood, yet the beekeeper may render some aid to colonies where the "worms" have made some headway. The "worm," as the larva of the beemoth is quite commonly called, builds itself a silken gallery on the surface of the comb or cappings, where it is difficult for the bees to get at it. Take a pin or a small wire nail, and dig a hole in this gallery at one end. Now dig a hole into the other end, which may be three inches or more away. The worm is likely to be somewhere between these two points. Beginning at one of them, tear open the gallery as you go, driving the worm ahead of your nail point, and when it comes to the hole at the other end it will come out of that hole, when it will be at your mercy, and you make take vengeance upon it in any way that may suit your fancy.

If a comb that is not in the care of bees becomes troubled with worms, the larger ones may be treated in the way just indicated. A quicker way is to have gasoline in a little oil can such as is used for a sewing machine, and squirt a little of the gasoline upon the culprit. Either of these ways, however, is rather slow and pokey, and it is better to do a wholesale business by submitting the comb to the fumes of carbon disulfide or burning sulfur. The former has the advantage that it kills the eggs as well as the larvæ.

Replying to your question directly, you will now understand that it was probably because of weakness and lack of vigor that the bees allowed the moth to lay its eggs in the hive, and its larvæ to live upon the combs.

It is not very likely the bees were without a queen when you received them, else the colony would hardly have continued from spring until late September. Indeed, it is not altogether certain they are queenless now, for it is not always easy to find a queen, especially for one of little experience.

Introducing a queen will not be very effective in overcoming the trouble, as it is too far advanced. Indeed, if the bees have been queenless long enough they are so old as to be of little value, and a queen woud be practically wasted on them. Although it may be a bit heartless and discouraging to give such advice, if the colony is as weak as it is likely to be to allow the worms to make such progress as is shown in the sample of comb sent, the best thing may be to let them go, and start anew next spring. Of course, if you have other colonies, you may unite these bees with another colony, but even so, such old bees are of little value. It is doubtful that the quart of bees left will pull through the winter, no matter how much honey they have.

It would be interesting if one could know how the colony became so weak, which is almost the same as saying how they became queenless, but that is a matter of guessing. One way would be that the colony swarmed or superseded its queen, and that the young queen was lost on her wedding trip.

If you should think it best to get a queen for these bees, you will do well to follow the instructions for introducing that will come with the queen, which will probably instruct you to put the eggs into the brood-chamber. Of course no other queen must be present, of which there is little fear.

## MISCELLANEOUS NEWS ITEMS

### Wisconsin Association

The annual convention of the Wisconsin State Beekeepers' Association will be held at Madison, State Capitol, Senate Chamber, on December 5 and 6, 1918. Wisconsin beekeepers who are not members of the State Association or of a local not affiliated with the State, will not receive programs except on request to the Secretary. Address the Secretary, EDWARD HASSINGER, JR. R. 4, Hortonville, Wis.

### Skin Irritation

By A. F. Bonney

In the October American Bee Journal "Colorado" complains of a skin irritation whenever he scrapes sections, and asks Dr. Miller for a remedy. The good doctor confesses ignorance, and suggests that "Colorado" may have to quit beekeeping.

The writer has been much troubled with eczema of late years and has had to do a great deal of reading on skin diseases, and it is astonishing how prevalent eczema is. It may lie dormant for years, only to flare up in the presence of an unusual irritant, as an acid, an alkali, propolis, or excessive heat. As bad a case as I ever saw followed a slight burn, and the person had it for years, for eczema is practically incurable.

I do not think "Colorado" need quit beekeeping, and I think, also, that he has eczema. He may write me and I'll try to help him. He may pay me with a chunk of moss agate, uncut.

We can prevent and palliate, if we cannot cure eczema, and here I shall deal only with prevention, as follows: Protect the skin. One may wear rubber gloves, but these are expensive. The next thing that suggests itself is glycerine of starch, which any druggist will make, for the price. In "Colorado's" case I suggest that 10 per cent of boric or 2½ per cent of carbolic acid be added. Apply freely before going to work.

If the irritation is restricted to small areas of skin, use flexible collodion, which may be had at drug stores. This coats the skin with a yielding, airtight protection. It is the "New Skin" so largely advertised and sold.

After the day's work is done, scrub the hands with soap and hot water, wipe nearly dry, then coat well with carbolized vaseline.

Buck Grove Iowa.

### Robbing the Old-Time Bee Gum

My grandfather, one of the first settlers of Texas, was one of the old-time honey producers, and I was always ready to help him, when a small boy, to hive or rob the bees, as we called it,sometimes using a sulphur match to kill the real bad ones before making an attempt to open the old box hive by knocking a board off the top of the box, which we called the cap, then cut the honey out.

I remember an instance of a neighbor with seven children walking a mile across plowed ground to spend the day. Mother was not feeling well, and I had decided to take some honey out of a vicious gum under a plum tree in the front yard. I smoked them with tobacco sprinkled over a bunch of old rags and rolled up about the size of a rolling pin. I got the cap off, but no honey, for they ran everything off the place except the chickens, and we did not return until night.

I left home at the age of 18 and the bees died for want of attention.

My father gave a man $10 to move them out of the yard so he would feel safe in sitting on the front porch. I have 20 colonies in cypress hives up to date all golden Italians. A storm on August 6 served us badly; blew 300 houses off blocks. We live in the cut-over pine timber of northwest Louisiana. We had no spring flow, but the goldenrod and aster is fine.

I think we have a fine country for bees. I am a conductor on the Gulf Coast lines and have a great deal of time at home, and my wife likes to work with the bees; also hives all swarms when I am out on the road.

E. C. KING,

De Quincy, La.

### Obituary

We regret to announce the death of one of New York State's leading beekeepers, Arthur H. Root, of Canastota, N. Y. Mr. Root was 68 years old and the youngest of a family of eight. He was a brother of L. C. Root, the son-in-law of Moses Quinby, men who have made their mark in the bee world. The family is in no way related with the Roots of Ohio.

Mr. Root died of pneumonia, probably following an attack of the influenza, which has made so many victims throughout the world in the past few months.

### Not a Substitute

As sugar is not plentiful here, we thought it might be well to fill the hives for winter with watermelon; but things are not always what they seem.

In the first place, there is comparatively little juice in a melon. We expected there was a great amount, but got about two quarts from a large melon that would sell at about the same price as a pound of honey. We were also surprised to find that the juice possessed very scant sweetness. Evaporated to the consistency of honey, there would be about one-tenth part left; while sorghum juice is but half as watery. Sorghum juice evaporated by the bees will make better winter stores than when it has been on the fire. If it can be secured at a price one-fifth that of molasses it will pay to feed the juice.

Just what would be the value of beet or maple juice is beyond our schooling, and how the bees would stand either for stores is a question. There is no doubt, however, but that much feeding can always be avoided by uniting. LEE ELLIS KERR.

Ft. Smith, Ark.

(We warn beekeepers against the use of either grape juice, melon juice, or sorghum juice as bee feed. These substitutes for good honey or pure sugar syrup might do to incite breeding, in the spring, when bees are not confined to the hive. But we know positively that the juice of any fruit is quite injurious, when the bees are confined to the hive for any length of time. Sorghum juice might be the least offensive. Mr. Kerr lives in a locality where bees are but little confined, hence his possible success.—Editor.)

### Another Fabre Book

J. Henri Fabre, who died not long since, is generally regarded as the greatest naturalist of his time. His greatest literary work is his "Souvenirs Entomologiques," on which he spent twenty-eight years of his life. This work, originally published in French in ten volumes, is now appearing in English, one or two books being translated each year. Many nature lovers eagerly await the appearance of each new Fabre volume in the English translation.

"The Life of the Grasshopper" is the latest in this series to reach our desk. This volume includes the various essays by the author on the grasshoppers, crickets, cicadas, mantis, etc.

In the chapter on the hunting of the mantis, is a fascinating account of the way in which the crab spider captures the honeybee on the blossoms which she visits in search of nectar. Several pages are devoted to the details of capture, killing of the captive and the final disposition of the carcass.

Like all of Fabre's books, this one displays a wonderful insight into the habits of the insects which he describes and it is well worth a place in the library of every nature lover. The book is published by Dodd, Mead & Co., of New York, at $1.60, but can be ordered through this office if desired.

### Candy for Late Winter Feeding

"Some of my colonies are short of honey in the brood-combs for winter. I would like to have a receipt for making candy. Is there a way to make it in sheets for insertion in the brood-frames for feeding them through the winter? This information would be interesting to me and other green beekeepers.

H. E. C., Manchester, N. H.

The receipt for making candy is given in most of the bee books. It may be found at paragraph 611 of the "Hive and Honey Bee" and at paragraph 194 of "First Lessons." As the receipt is short and simple, we will give it here:

Heat about 4 parts of sugar with one part of water and boil it until thick enough. Stir constantly so that it will not burn. To know when it is thick enough, dip your finger first into cold water, then into the syrup. If what adheres is brittle to the teeth, it is boiled enough. Put into shallow pans of proper size. Some people use thin tissue paper under the cakes. Others use very light muslin and make the cakes thin enough to slip down between the frames.

When bees are short of food as late as December, a very good way is to put the hives down in a cool, dry cellar and place sheets of this candy over the top of the frames, in a shallow super, above the cluster, so the bees may get to the candy without leaving the brood-chamber. We have often seen a comparatively weak colony winter thus, and it is quite interesting to go down into the cellar with a flash light, lift up the cap carefully and noiselessly and see the bees gathered around the sugar, in a quiet cluster. It does not require over 6 or 7 pounds of this candy to bring them to the days of spring. After that they must be fed with more watery food, for they need water to breed, and candy is insufficient. Even colonies in box hives may be fed in this way by inverting in the cellar and placing candy on the end of the combs.

### Loss of Bees by Diarrhea—Introduction of Queens

Last winter and spring we lost 47 colonies by diarrhea, from November to May. We would be glad to have advice on the treatment of the disease.

We bought and introduced several queens in the past 4 years and lost some until we tried the following plan: Catch the old queen and rub her all over the cage containing the young queen before introducing the latter. Then put the cage between two combs and let her alone 4 days. You will then find that the bees have released her and that she is laying.

J. M., Speers' Ferry, Va.

Answer.—As a rule, diarrhea is caused by a poor quality of winter food. It is easier prevented than cured. Perhaps your bees had honeydew or fruit juices, and were confined to the hives a long time by bad weather. When any such stores are in the hives, it is necessary to extract the bad food and feed either good honey or sugar syrup, 2 or 2½ parts sugar to 1 of water. Located where you are, south of the 37th degree of latitude, if you place your colonies in a well-sheltered spot, facing south, **and have good food in the hives,** you will not find any diarrhea.

Your method of introducing queens is similar to that given by Dr. Miller in May, 1917, page 158, which consists in putting the old queen in the cage for an hour or two previous to putting the young queen into it. But your method has the advantage that it is not necessary to remove the new queen from the cage in which you have received her, letting the bees release her by eating the candy at the end of the cage.—Editor.

### Swarm in a City Street

While on their 500-mile walk from Los Angeles, Calif., to San Francisco, Calif. Jim Beatty and Joe Haberstock, known in vaudeville as the "Happy Hikers," walking song-writers, snapped the accompanying photo in San Jose, Calif.

The swarm of bees on the radiator of this automobile, caused quite a little excitement and amusement.

The lobby of a picture theater nearby was so attractive to Mrs. "Queen Bee" that after studying the face of her favorite screen hero, she majestically settled herself on the dome of the ticket office and, naturally enough, thousands of her tiny followers were soon buzzing, humming and singing to the ragtime time ground out on the mechanical piano within.

But the "swarm" proved too friendly to suit the pretty cashier, who finally was forced to flee from the office. Business was suspended until the "Queen" took a notion for an automobile ride and landed on the radiator of the machine shown in the photo. The owner is trying to collect the bees in the box.

### Bees Quickly Locate Selves

The most remarkable instance of bees locating themselves occurred with me only a short time ago. To be accurate it was the last week of September. A friend of mine sold a ranch on which he reared mostly cattle and goats. On this ranch he had eight colonies of black bees. Having sold the ranch and all belonging to it except the bees, he offered to sell them to me. They were in old hives of the standard movable frame variety, badly warped and

Swarm takes possession of an automobile.

practically rotten, leaking bees badly. I bought the bees for $1.25 per hive, and after looking them over for moving, concluded that I had made a bad bargain, yet since I lost over 700 stands of bees during the year and winter of 1917, due directly to the drought here, I was glad to get the bees and make an effort to move them. I loaded them just at nightfall and took them home at night so that if the hives leaked I would not lose any of the bees, for they were very weak, having not more than three frames of bees to the hive. It was 18 miles to my home. I loaded them into my trailer and started home at dark. Two hours later I was at home. Bees were crawling over the hives and wagon. I ran the wagon into my back yard and left them there till morning. Just a little after sun up next morning I placed them and opened them. They immediately came out and began to fly around the front of the hives. Ninety minutes later, to my great amazement , these bees were working like veterans, having thoroughly located themselves, from all appearances, and were actually carrying in pollen at the rate of sixty bees to the minute. I have moved bees many times but never saw such quick location in my life, and I have kept bees a long time.

These bees have done remarkably well since I moved them. They are very strong in numbers and gathering very much honey. I am sure that they will winter well, for they are now in wintering condition; yet, when I bought them, they would not average ten pounds of honey to the hive, due to their bad location. I will make them rear queen-cells next spring, and after raising a batch of cells they will get a first-class Italian queen and will soon change their color from mourning to khaki.

T. P. ROBINSON.

Bartlett, Tex.

### "Honeybee" Vs. "Mother Bee" Nomenclature

I have read with interest article on page 301 of your September issue, by Robert Sparks Walker, editor of the Southern Fruit Grower, and some very apt comments of your own.

Brother Walker seems to fear the bogie of monarchy in the name of "Queen." While I agree with him in the relative merits of the two forms of government, I am not able to get his point of view that, because one is less desirable, all words used in connection with it are necessarily so, and should be eliminated.

To carry his thought to a logical conclusion, a whole lot of Holy Writ would have to be re-written; he would refuse to play "king-pins"; and goodness knows what he would call a "kingfisher." The "kingbird," I agree, is in bad repute with beekeepers.

The following quotation of Shakespeare (born 1564, died 1616) is of interest. It is from "King Henry V." and was probably written about the time that "Butler, the English naturalist, discovered that 'she' was really a female":

"For so work the honeybees;
Creatures that, by a rule in nature, teach
The act of order to a peopled kingdom.
They have a **King**, and officers of sorts;
Where some, like magistrates, correct at home,
Others, like merchants, venture trade abroad;
Others, like soldiers, armed in their stings,
Make boot upon the summer's velvet buds;
Which pillage they with merry march bring home
To the tent-royal of their emperor,
Who, busied in **His** majesty, surveys
The busy masons building roofs of gold;
The civil citizens kneading up the honey;
The poor mechanic porters crowding in
Their heavy burdens at his narrow gate;
The sad-ey'd justice, with his surly hum,
Deliv'ring o'er to executors pale
The lazy, yawning drone."

A. A. GARDINER.

Quebec.

### Double Covers Dipped in Tar

Our picture shows a double cover made by J. A. Simmons, of Sabinal, Texas. To protect these covers from the weather, Mr. Simmons dips them in a mixture of coal tar and pitch. There is a very general idea that hives should be painted white to avoid overheating in summer. Sabinal is located in the semi-arid section of west Texas, where the weather gets extremely hot, yet Mr. Simmons does not find any objection to the black covers on this account. In the Fifth Annual Report of The Iowa Bee Inspector, Allen Latham, of Connecticut, has a paper on the subject of black as a color for hives. He contends that black is a better color than white for this purpose.

### Beekeeping in Santo Domingo

Another letter from H. Brenner.

At the end of June, I made a trip to our apiaries on the north coast, in Mantanzas and Cabreras. The first apiary is too far from the mountains and the bees did not do well, because they have no protection from the sea breezes, when they come home loaded with nectar. In this apiary I have to be contented with honey coming from the bushes and trees along the coast. The flow lasts from February till the end of April.

In Cabreras, the hills are near the sea and the honey-flow is continuous. In this apiary the bees filled everything with honey and brood, even to the space below the frames, and every colony swarmed except those that had supers or young queens. This apiary in Cabreras is on Dr. Maldonado's estate named "Diamante." It is an ideal location. The bees get their honey from the hills and the sea shore, but they are protected from the strong breezes by numerous trees and bushes that form a windbreak. But we are unable to extract from these apiaries because we have no outfit nor bee-houses.

We are making increase and hope that the war will soon end so we may get material from the States. At Sanchez we have 165 colonies, 100 with supers of worked-out foundation. More supers are needed. I extracted last week 2½ barrels of honey. But, brother beekeepers, you have no idea of the difficulties we have to meet. The barrels leaked. We had to remove the honey twice from one of them. Imagine how I felt when I opened the door of the honey room in the morning and saw the floor covered with honey. The helpers we have are not used to water. They do not think it necessary to wash anything. They see no use in washing an extractor or honey

J. A. Simmons of Sabinal and his double covers.

receptacles. One has to teach them everything. They are quite good-natured, but if you want them to work in a hurry, they show you a different face. We hope we may be able to change this before long, by getting our help from Porto Rico and the United States.

We are making our supers from discarded gasoline boxes, but the frames and wire nails we must secure from abroad. In the Arinosa apiary the honey needs extracting but there is no house ready, for want of lumber and of a carpenter. The honey comes in abundantly, and we have foundation, but no frames. So we must extract to make room and relieve the pressure.

Our reward will come by and by, when we may be able to get everything in shape.

In the Sanchez apiary, I strengthened a colony in December to such an extent that it gave me a super full in January. I am sending samples of honey to the American Bee Journal, as well as to Friend LeStourgeon, of San Antonio, and to Mr. Youngblood, of College Station, Texas.

Even if we were able to extract all the honey at present, we are not allowed to ship it. So our crop cannot be sold unless we are willing to close it out to an English company that is paying only about half price for it.

I have found several abnormal conditions which I propose to mention in a future letter. I wish I had a few brother beekeepers here to discuss those matters with them.

H. BRENNER,
Sanchez, Republica Dominicana,
July 7, 1918.

(This letter was held back in the hope of being able to give a critical opinion of Friend Brenner's San Domingo honey. But whether the censor tasted it himself and concluded to keep it, or whether it was fed to the fishes by some of the subs of our good friends, the Huns, we have not yet received it.—Editor.)

### A New Way to Make Candy for Shipping Queens

I am sending you two mailing cages full of a bee candy of our own special making. It is most fit for mailing cages as well as for feeding colonies. I dare say no other candy can be compared with it. See how fine the paste is. If you grind it between your fingers you will find no granulation at all. The sugar is quite incorporated into the honey and forms with it an homogeneous mass. It is composed exclusively of sugar and honey. It may appear rather hard at first, but if you strike it a little with the tip of the finger it will soon become soft and moist. Moreover, its sterilization is quite guaranteed, since, to make it, it is necessary to reach the temperature of 244 degrees F. I found this way of making candy 3 years ago, and wish to show it to you.

Take 2 pounds of sugar and put into a stew-pan with half a quart of water. Put the stew-pan on a gas burner and stir till the sugar is dissolved. Make the liquid boil gently till a thermometer steeped in it marks 234 degrees F., when you must pour into the pan half a pound of rather warm honey. If you wish to have the paste a little softer, add a little more honey. Let the liquid boil again without stirring till the thermometer is up to 244 degrees F., when the stew-pan is taken off the gas burner and left unmoved till the thermometer is down to 113 degrees F. Then take a wooden spatula and stir up the liquid (in the same direction) till it is transformed into a straw-colored thick paste that prevents any more stirring. The next day the candy is run through a common machine for mincing meat and so brought to perfection.

ENRICO PENNA,
Bologna, Italy.

(Our readers will remember that Mr. Penna is the expert Italian queen breeder whose apiaries were visited by the editor in 1913, and of whom mention is made in the issue for January, 1915, of the American Bee Journal.—Editor.)

## DR. MILLER'S ANSWERS~

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

### Moving in Cold Weather

I am going to move about 150 miles about the first of December and want to ship a few colonies of bees. They are in new 10-frame hives with full sheets of foundation and wired frames. How is the best way to fix them for shipping, and is it all right to ship them in cold weather? KANSAS.

ANSWER—In the limited space allowed here it is not possible to give the fullest instruction for shipping bees in hives. A very important thing is that they be not allowed to be shunted about in the car. One way with a few colonies is to nail onto the floor of the car 1-inch strips on each side of a hive. Place the hive so that the frames run parallel with the railroad track. They will probably go all right in cold weather, although there is some danger of combs breaking in the severest weather.

### Distance Bees Fly

1. How far will bees go for the honey crop?
2. Will bees that are hived in June from a swarm found out on a tree and put in a common box be likely to swarm this year?
3. How am I to tell the kind of bees I have? They are a brown bee, with black heads; they seem to be a fine lot of workers.
4. I robbed them this past week, but only found one full comb. The others were partly filled and full of young bees. I took in all about 6 pounds of comb honey, and left an equal amount in the hive. Do you think it will be necessary for me to feed them all winter? N. MEXICO.

ANSWERS—1. Under great stress they have been known to go 5 miles or more, but for profitable work they probably do not go more than 2 miles, and some think not more than a mile and a half.

2. No; although it is possible they may.

3. If there is no yellow on them they are probably the common black bee, sometimes called German brown, or black bees.

4. If you have taken 6 pounds of honey and left only an equal amount, they certainly need feeding. They should have at least 30 pounds, and in your climate 40 would be better.

### Foulbrood

In the treatment for brood diseases we are advised to sterilize hives, covers, bottoms, etc. But what about the bee itself? It seems to me that the bacillus could remain in the stomach of the bee or on its feet or body. I have treated hundreds of cases of disease and know what is necessary to effect a cure. But the above has never been clear to me. OHIO.

ANSWER—It is true that some advise to sterilize hives, covers and bottoms, but others do not consider it necessary to sterilize either of these. Bees do carry the disease in their sacs or stomachs, but the treatment you use makes them use up any diseased honey before they have brood to feed. They are so neat in their toilet that any germs are probably kept cleaned off their bodies.

### Wintering

I have a number of colonies and do not know where it would be best to winter them. Up-stairs it would be impossible, and in the cellar it is too damp. I am planning on building a beehouse suitable for 30 or 40 colonies. State in the Journal which would be the best plan in building it to keep the temperature just right. WISCONSIN.

ANSWER—It would hardly be advisable for you to try to winter in a building above ground. I would rather risk the damp cellar, putting a stove in it to overcome the cold and dampness.

### Supers for Sections—Italians

1. Please let me know what size hives and what kind of super you use for the production of comb honey.
2. Do you use a shallow extracting frame on each side of the super?
3. What kind of Italians do you have, leather colored or goldens? KENTUCKY.

ANSWER—1. I use 8-frame dovetailed hives, because I have them; but if I were beginning over again I would likely have larger hives. I use T supers.

2. I don't use extracting-combs in section-supers, but it is likely a good plan.

3. My bees are mostly 3-banded, leather-colored, although I have some hybrids.

### Carbon—Stings

In destroying beemoth and eggs, how is carbon disulfide to be used?

I have discovered that swelling from bee-sting can almost entirely be prevented by pressing out the poison and painting with what the physicians call "sealer"—a liquid court-plaster. INDIANA.

ANSWER.—Carbon disulfide may be used on dry combs or combs containing honey, but not on combs containing brood. Pile up the supers containing the combs, and you will be more sure of success if you do this inside of some building, or else outside when there is no wind. Also it is well to make a thin dough with clay and water, to putty up the cracks between one super and another. Put an empty super on top of the pile, and in this set a saucer, into which you will pour 3 or more tablespoonfuls of the liquid, closing over the cover quickly, and leaving it closed for 24 hours. Don't have any fire or light near if you don't want to be blown up.

Pressing out the poison should be helpful, and if you get it all out the "sealer" ought hardly to be necessary. But unless you have some special way of operating will you not squeeze as much poison in as out?

### Extractors

What Extractors will take four shallow extracting frames 5⅜ inches deep. Will a two-frame Cowan take four shallow frames 5⅜?

WASHINGTON.

...Answer.—The Cowan extractor with pockets 12x16 will take four shallow frames 5⅜ inches deep, outside measure. Also the Novice, with pockets of the same size.

### Winter Cases

Is Bartlett's winter packing case, such as shown on page 780 of the edition of 1917, of "A B C — X Y Z of Bee Culture," a good packing case for my location It gets down pretty well below zero here, so I will want something warm. Last year I did not pack them at all and lost three out of twelve. It wasn't so bad in accordance with the other losses about here. There was one man lost 6 out of 7, another all he had, and the rest in proportion.

PENNSYLVANIA.

Answer.—I think you might expect good results from using Bartlett's packing case.

### Alsike Clover

1. About how many colonies would you advise to keep for a 50-acre field of alsike clover, provided the weather, etc., were suitable, and a good stand of clover, there being no other honey plants in the vicinity?

2. Is alsike clover the best yielder of all the clovers? How is the quality?

ILLINOIS.

Answers.—1. Just exactly how many colonies of bees would be required to keep 50 acres of alsike cleaned up is a secret that I'm afraid will never be found out. It might be 100 colonies, and it might be two or three times as many. It might be something different from either guess. Even if we know the exact number, it might not be advisable to have that number without considering something about what the bees could do before and after the blooming of alsike.

2. I don't know whether alsike or sweet clover takes the lead as a honey-yielder. Alsike honey is of best quality.

### Goldens

1. Have you ever given those Golden Italian bees a fair test in your apiary with your 3-banded Italians for section comb honey? Read what Doolittle and O. O. Poppleton say about those Goldens for section comb honey. They say they get very much better results from those bees than any others. Also, Mr. John M. Davis, of Spring Hill, Tenn., says that he can't find any difference in wintering or honey gathering qualities of the Goldens compared with his 3-banded Italians, and he has Moore's long-tongue bees. Our State Inspector for Tennessee says he thinks this is just a notion of the people, as his Goldens are fine, and so do others. I have tried both plans of putting on the supers—both beeway and plain sections—and I get 100 per cent better results to put the empty supers on top when tiering up, and sometimes I have as many as 2 to 5 supers on hive at once, and my locality is very poor for bees, too. So I am requeening some of my black colonies of bees with Ben G. Davis's Golden Italians and some with Curd Walker's 3-banded Italians, and I want to see next year, if the season is good, if the Goldens come out winners in wintering and honey gathering. As Doolittle says, they are best of all for comb honey. Well, I had one colony of Goldens about 25 years ago and they were the best workers I ever saw in all my 30 years of work among my bees. I would like for some of the leading apiarists who run for comb honey to give their experience with the Goldens for comb honey through the American Bee Journal.

I would like for Mr. J. W. Lawrence, of Rustburg, .Va., Route No. 3, to give his experience with the Goldens. Will you please ask him to send in his report at once. I see he says in Ben G. Davis's advertisement that he got 320 pounds of comb honey the first season.

TENNESSEE.

Answer.—I gave the Goldens the same chance as other colonies, if you call that a fair test. Yet, while I gave a fair test to the colonies I had, I cannot say that I gave a fair test to Goldens as a whole, for I had only a few of them, and one cannot always judge many by the few. My own opinion of Goldens is rather from the testimony of others than from my own experience. It looks as if there were Goldens and Goldens, some good, some poor. While you quote those who praise them, a larger number might be quoted who do not.

You say Doolittle says Goldens are best of all for comb honey. Do you so understand from what he says in Gleanings for 1914, page 9, which you quote? He there says: "If I were producing comb honey altogether, I would procure a good queen of the golden variety, rearing all queens from her, and allow them to mate with any drones they might chance to meet, the most of which, without doubt, would be from an entirely different blood from themselves, which would give a direct cross. Such direct cross always gives the greatest vigor, and in reference to your question as regards the best bees for comb honey I should not care one cent whether the young queens from such a mother mated with drones from black or hybrid stock, as all my experience goes to prove that throughbred Golden Italians, mated to drones from black or hybrid mothers, give bees equal to the very best for comb-honey production." That certainly does not teach that he thought Goldens the best of all for comb honey, but does teach that he thought the right kind of hybrids as good as, if not better than, Goldens.

No matter what however may be the general opinion, if you can get better results with Goldens than with others, then Goldens are best for you.

If I understand you correctly, you get 100 per cent better results when tiering up section-supers by putting the empty supers on top than putting them under the others. If you can get even 10 per cent better results, then putting empties on top is the way for you. In my locality I get good results by putting the second super under, when a good flow is on, later putting an empty both above and below, and toward the close of the flow putting the empty on top.

### Winter Entrance

If I put on winter case with entrance not even with entrance in hive, say hive entrance faces east, and I put entrance of case to south, with passage way to entrance, will the bees find this readily, and will it be O. K.?

ILLINOIS.

Answer.—I know nothing about it from experience, but should judge that such would depend upon the amount of opening. If the parts are so open, for instance, that the light entering the entrance to the case at the south can be seen at the entrance to the hive at the east, there should be little or no trouble. On the other hand, if it should be that no light from the south can be seen at the east entrance of the hive, there might be trouble, the bees being slower to fly on a warm day, or failing to fly altogether.

### Illinois State Beekeepers' Association

The eighteenth annual meeting of the Illinois State Beekeepers' Assocition will be held in the Sun Parlor of the Leland Hotel, in Springfield, on the 17th and 18th of December, next.

Mr. Morley Pettit, of Ontario, Can., will be with us; also Hon. N. E. France, of Platteville, Wis.; F. Eric Millen, State Apiarist of Iowa, and C. P. Dadant, Editor of the American Bee Journal.

With all these prominent men present we feel that we are assured of a good meeting.

Programs will be sent out to our 400 bee members before the date of the meeting.

Fellow members of the Association, remember the value of our published report depends upon what is done and spoken at this and the Chicago Conventions.

JAS. A. STONE, Sec.

# Index to Vol. LVIII

## SUBJECTS

Acacias—273.
Advantages of Large Hives—367.
Advertising Honey—50, 89, 155, 228.
Alfalfa—315.
Antiseptic Treatment for Bee Diseases—89.
Ants—61, 410.
Apiary Building and Equipment—127, 152, 379.
Apiary, Distance From—244.
Apiary Inspection in Ontario—17.
Apicultural Don'ts—297.
Arkansas Valley, Beekeeping in—372.
Asters—331.
Atkins, E. C., to Iowa—347.

Banat Bees—100.
Bee and Queen Situation—118.
Bee Diseases (See Foulbrood, Paralysis, Etc.)
Bee Diseases, Antiseptic Treatment—89.
Bee Diseases of Adults—406.
Bee Diseases, Treating with Drugs—119.
Bee Clubs—48.
Bee, History of Italian—415.
Bee Hunting in a Hot Air Balloon—343.
Beekeeping Extension Work—62.
Bee Literature—205.
Bees, Blacks Short of Stores—405.
Bees, Buying—169.
Bees Deserting Hives—244.
Bees in Packages—13, 58, 88, 130, 134, 243, 264, 252.
Bees of Mine—22.
Bees on Shares, Agreement for—97.
Bees, Orientation of—420.
Bees, Price of—59.
Bee Trees—345.
Beeswax From Honey and Pollen—350.
Beeswax Production—335, 339.
Beeyard Control, Centralizing—193
Being Sweet Without Sugar—198.

BIBLIOGRAPHY—
  Beekeeping Essentials—347.
  Beekeeping for the Fruit Growers—242.
  Contro L'apicidio—155.
  Environment Influences on Nectar Secretion—118.
  Iowa Apiarist Report—301.
  Insect Pollination of Timber Line Flowers—118.
  Le Ape E Il Miele—227
  Life of Grasshopper—420.
  Manual on North Carolina—99.
  Ontario Bulletin on Wintering—25.
  Practical Queen-Rearing—118.
  The Flower and the Bee—242.
  Transferring from Box Hives—300.
  Victorian Bee Journal—370.
  Weather and Honey Production—118.
  West Virginia Beekeeping—277.
  Wintering Bulletins—335.
Bitterweed Honey—386.
Boneset—267.
Breeding of Bees—279.
British Columbia, Bees in—15, 83.
Brood Chamber, Enlarging—135.
Brood, Loss of—370, 393, 388.
Brood, Pickled—352.
Buckbrush—54.
Burr-Combs—170.
Burleson, T. W.—20.

California, Weather and Prospects—405
Canadian Beekeeping—414.
Candy, Sugar—102, 420, 422.
Carbon—422.
Carniolan and Banat Bees—10, 102.
Caucasian Bees—279.
Caucasus, Bees of—16.
Cell Protectors—279.
Cells, Are they Hexagons?—82.
Chaff Cushions—169.
Christmas—416.
Claims for Damages to Honey—21.
Clover, Alsike—423.
Clover, Red—347.
Comb—388.
Comb, Brittle—29, 64.
Comb Honey—243, 350.
Comb Honey, Storehouse for—20.
Comb Honey Losing Popularity—46.

Comb Honey, Net Weight—60.
Combs, Bees Cleaning—172
Combs, Melted—245.
Combs, Using Old—245, 353, 423.
Concrete—61, 386, 388.

CONVENTION MEETINGS—
  California—384.
  Chicago-Northwestern—10.
  Idaho-Oregon—63, 242
  Indiana—25.
  Illinois—132 312, 347, 381.
  Iowa—11, 167, 242, 341, 384.
  Kansas—26, 204.
  Massachusetts—21, 167, 347.
  Michigan—97, 98, 312, 382.
  Missouri—27, 81.
  Minnesota—381, 386.
  Nebraska—133, 277.
  National—25, 62, 133, 204, 312, 382.
  New Jersey—25, 281.
  New York—28, 242.
  New Zealand—349.
  North Carolina—25, 312.
  Ontario—27, 133.
  Pennsylvania—25, 63, 167,382.
  West Virginia—98.
  Wisconsin—277, 419.
Co-operative Marketing—14, 158,192, 299, 337, 354, 377.
Corn, Indian—350.
Correspondence Course in Beekeeping—132.
Corrugated Paper—167.
Cotton Belt—403.
County Inspectors—168.
Covers, Dipped in Tar—421.

Demaree Plan—64, 100, 170, 412.
Denmark Beekeeping—276.
Diarrhea—171, 420.
Diet and Disease—226.
Disease Diagnosis—347.
Distance Bees Go for Honey—261, 422.
Division Boards—170.
Donnegan, J. of Texas—371.
Double Stories for Winter—346.
Drone Cells—207.
Drone Comb—119, 351.
Drones—135, 314.
Drumming Bees—243.
Dummy Hives—203.

Efficiency in Beekeeping—94.
Entrances—262, 308, 309.
Evolution of the Bee Hive—115, 151, 270.
Extracting Too Closely—277.
Exhibit at Texas Fair—16.
Express Companies, Faults of—117.
Extension Work—98.
Extractors, Size of—423.
Extractors, Speed of—351.

Feeder, A New—349.
Feeder, Hubbard—87.
Feeder for Cell Building Colony—14.
Feeders, Filling—379.
Feeding Granulated Honey—350.
Feeding (See also Honey and Sugar)—101, 102.
Feeding Sections—65.
Feeding in Massachusetts—99.
Feeding for Winter—316.
Flax as a Honey Plant—280.
Florida Beekeeping—52, 122, 376.
Florida, A Month in—229.
Flowers, Garden—123.
Flowers of California—129.
Food and the War—83, 126.
Foreign Conditions—132, 265.
Foulbrood—170, 206, 245, 314, 352, 383, 422.
Foulbrood, American—100, 343.
Foulbrood, Curing or Eradicating—161, 190, 226, 236.
Foulbrood, Equipment from—135.
Foulbrood, European — 165, 206, 207, 231, 232, 300.
Foulbrood, Gasoline for—351.
Foulbrood Honey, Feeding—29.
Foulbrood Law of Iowa—97.
Foulbrood, Sulphur for—169.
Foulbrood, Treatment in Fall—351.
Foundation—171.
Foundation, Full Sheets—136.
Foundation Removing—351.
Foundation Starters for Bottom of Frames—278.
Frames, Hoffman—314.
Frames, Wide Spacing of—345.
France, Price of Honey in—374.
Fruit Bloom—155.
Fuzz-bearing Plant—272.

Gates, B. N., to Ontario—373.
Georgia, A Trip to—259.
Georgia, Beekeeping in—157.
Godfrey, Mattie C.—22.
Golden Italians—423.
Greiner, Reminiscences of—191.

Helps to Canning Efficiency—269.
Hive Covers, Weights for—278.
Hive Records—130.
Hives, Buckeye—100.
Hives, Dadant—387.
Hives, Distance Apart—135.
Hives, Evolution of—115, 151, 270.
Hives, Eight and Ten-Frame—166, 281.
Hives, Kind to Use—241.
Hives, Large, Advantages of—367, 406.
Hives, Summer and Winter—308.
Honey, American in Italy—83.
Honey and Good Health—240.
Honey Board, Crane's—56.
Honey, Carrying Up—60.
Honey, Changing From Comb to Extracted—200.
Honey, Extracted or Comb—98.
Honey, Fermenting—206, 385.
Honey for Cooking—225.
Honey for Winter—265.
Honey, Frozen—136.
Honey House, Ventilated—385.
Honey in Broken Combs—135.
Honey Liquefying and Packing—272.
Honey Marketing, Scientific—302.
Honey, Nourishment in—95.
Honey. Packing—121, 197.
Honey Plants—54, 190, 331, 340.
Honey Prices and Markets—26, 27, 32, 63, 68, 98, 101, 134, 140, 175, 211, 242, 248, 278, 284, 317, 320, 356, 386, 392, 424.
Honey Production, Boosting—118.
Honey Recipes—60, 96, 131, 166, 199, 203, 237, 417.
Honey, Strained—87.
Honey Versus Sugar—406.
Honey Vinegar—277.
Horsemint—54.
House Apiaries—127.
How I Won My Bee Honors—239.

Increase, Preventing—135.
Increasing—64, 169, 171, 280, 314, 351, 388.
Indian Currant—54.
Intelligence of Bees—371.
International Fraternity of Beekeepers—300.
Inversion—9.
Isle of Wight Disease—46, 61, 242, 371.
Italian Bee—415, 422.
Italian, Golden—423.
Italianizing—170, 388.
Italy—Letter from—344.
Ivy, Poison—417.

Jerusalem Beekeeping in—195, 234.

Laboratory for Bees at Ames—299.
Larvæ, Transferring—349.
Law, Iowa on Foulbrood—97.
Laying Workers—192, 315.
Legal Service Department—21, 60, 97, 132, 206, 240, 346.
LeStourgeon, C. J., Death of—312.

Maintenance of Colonies From One Flow to Next—267, 305.
Marketing Co-operatively—14.
Martin, Purple—314.
Mason Bees—8.
Mendleson, M. H.—47.
Metal Honey Comb—275.
Mexican Beekeeping—223.
Miller Answers—28, 64, 100, 134, 168, 206, 243, 279, 313, 350, 386.
Mize, C. D—381.
Mold in Hives—169.
Moths—387, 406, 418, 422.
Mountain of Honey—270.
Moving Bees—93, 101, 244, 422.
My Neighbor's Garden—57, 91, 160, 201, 303, 411.

New South Wales, Honey in—301.
New Zealand Beekeeping—11.
New Zealand, Letter From—405.
Nomenclature—421.
Nuclei—352.
Nuclei, Uniting—349.
Nucleus Division—64.
Nurse Bees—28.
Nutrition of the Honeybee—92, 129.

OBITUARY OF—
  Aikin, R. C.—155.
  Becker, C.—278.
  Chase, Jos. H—132.
  D'Autemarche, F.—155.
  Donlittle, G. M.—227.
  LeStourgeon, C. J.—312.
  Root, Arthur H.—419.
  Strong, J. L.—155.
  Whitney, W. M.—98.
  Witham, John—312.

Observation Hives—264
Ontario Provincial Apiarist—373.
On the Storeroom Shelves—380.
Organization—340.

Packages for Honey—197.
Packing, Heavy—346.
Palmetto Honey—242.
Palmettos of Florida—408.
Paralysis—64.
Park, Wallace to Iowa—98.
Parthenogenesis Among Solitary Bees—270.
Parthenogenesis, Fabre on—156, 190.
Parthenogenesis and Punic Bees—370, 375.
Pellett on Staff—334.
Pickled Brood—352.
Poison—417, 419.
Pollen and Pollen Plants—79.
Pollen for Winter—389.
Porto Rica Beekeeping—51.
"Practical Queen-Rearing"—118, 341.
Preserving With Honey Instead of Sugar—205.
Price Recommendations—263.
Propolis—170, 202, 351.
Punic Bees—370, 375.
Put-up Plan—315.

Queen, Age of—101.
Queen, Behavior of—389.
Queen Breeders, Federal Supervision of—46.
Queen Cells—280.
Queen Efficiency—124.
Queen Excluders—64, 351, 371.
Queen Introduction—279, 315, 352 420.
Queen Introduction, Smearing With Honey—200.
Queen Introduction, Smoke Method—82.
Queen Laying—29, 154
Queen Laying, Affected by Sugar Feeding—61.
Queenlessness—Inducing—100.
Queen or Mother Bee—301, 421.
Queen Nursery, Miller—100.
Queen-Rearing—29, 313, 314, 383.
Queens—168.
Queens, Clipped—315.
Queens, Finding—131.
Queens, Mailing—169.
Queens, Mating of—59, 82, 313.
Queens, Receiving Shipped—102.
Queens, Rearing in England—413.

Racing the Stingers—95.
Red Clover as a Honey Plant—238.
Reminiscences of Early Days—191.

REPORTS FROM—
  Alabama—348.
  Arkansas—61.
  California—24, 64, 134, 384.
  Illinois—23, 61.
  Indiana—385.
  Iowa—23, 61, 348.
  Minnesota—61.
  Missouri—61, 384.
  New York—24.
  North Carolina—24.
  Ohio—61.
  Oklahoma—23.
  Ontario—61.
  Quebec—346.
  Vermont—25.
  Virginia—24.
  Wisconsin—23.
  Wyoming—23.
Requeening—100, 101, 135, 169, 245, 265, 314, 350.
Rio Grande Valley, Bees in—187.
Robbing—315.
Robbing Old-Time Gum—419
Royal Jelly—353.
Russian Beekeeping—10.

San Francisco Bay, Beekeeping Around—309.
Santo Domingo, Beekeeping in—86, 194, 421.
School Teachers as Beekeepers—311.
Schmidt, Geo—418.
Scotland, A Letter from—308.
Sections, Cleaning—134.
Sections, Uniformity of—163.
Shake-swarming—28.
Shaking Bees—64.
Shamrock vs. White Clover—13.
Shares, Running Bees on—314, 351.
Shipping Honey—21.
Snow, Bees on—169, 353.
Snowberry—54.
South, Wintering Problems of—306.
Southern Beekeeping—267.
Splints—280.
Spraying and Bees—312.
Spring Suggestions—88.
Starvation in Spring—55.
Stickers for Honey—349.
Stings of Bees—243, 422.
Substitutes for Honey—419.
Sugar Arrangements for Illinois—119.
Sugar for Feeding Bees—10, 66, 301.
Sugar, Obtaining—62, 83.
Sugar Shortage—116, 335.
Sugar vs. Honey—335.
Supers, Section—348, 422.
Super, Shallow—64
Supers, Shallow vs. Full Depth—171.
Super Ventilation—280.
Supplies, Making—13, 120, 266.
Swarm Control—383.
Swarm in City Street—420.
Swarming—135, 207, 281, 313, 314, 315, 350.

Swarming Impulse. Is It Inherited?—379.
Swarming, Shake—28.
Swarm, Ownership of—315.
Swarm Prevention—29, 136, 206, 207, 243, 275.
Swarm Prevention with Excluder—280.
Swarm Returning—244.
Swarms, Catching—171, 388.
Swarms Leaving—352.
Swarms, Prime—351.
Sweet Clover, Growing—7, 83, 135, 315.
Sweet Clover Seed—97.
Switzerland, Notes from—380.

Talks for Young Folks—125.
Taxes on Bees—97.
Temperature of a Bee's Body—309.
Texas Beekeeping—378.
Texas, Cotton Belt of—403.
Texas, Glimpses of Southwest—295.
Texas Inspector to Kansas—277.
Texas Queen and Package Business—336.
Thistle, Star—340.
Tobacco, Honey from—406.
Transferring—135, 171, 264, 278, 353, 412.
Transferring in Georgia—353.
Transferring in Winter—158.
Tupelo Honey Exchange—25, 98.

Uniting—130, 313.
Uniting Nuclei—349.

Valuable Pest to Beemen—340.
Virgil, the Poet of Beedom—274.
Visit to the Food Administration—164.

War Beekeeping—311. 385.
Wastefulness and High Cost of Living—226.
Water, Dirty, Cause of Disease—119.
Watering Place for Bees—165.
Wax Moths in Section Honey—169.
Weak Colonies in Spring—155.
Weather Experiences and Honey—17.
Western Honeybee—335.
Whitney, W. M., Death of—9.
Winter Case, Paper—344.
Winter Cases for Single Hives—19, 423.
Winter Cases, Quadruple vs. Single—85.
Winter Cushion—345.
Winter Entrances—389, 423.
Winter Problem of the South—306.
Wintering—100, 169, 243, 244, 307, 312, 333, 345, 347, 352, 371, 388, 410, 422.
Wintering, Failure in—207.
Wintering in British Columbia—19.
Wintering in Cellar—169, 406, 423.
Wintering on Honey Below Brood Nest—23.
Wintering Outside—130, 349.
Women, Beekeeping for—22, 53, 60, 95, 131, 166, 203, 240, 275, 311. 342, 382.
Women's Clubs and War Foods—237.
Women's Dress in Beekeeping—203.
Woman's Work in Food Conservation—90.
Woodman, A. G.—120.

## ILLUSTRATIONS

Acacia Blossoms—58, 273, 274.
Advertising Apples—50.
" Cranberry—15.
" Food—164.
" Texas Honey Producers—193.
Aikin, R. C.—155.

APIARY OF—
Anderson, Grant—187.
Ault, E. B.—337.
Baldwin, F. M.—241.
Beaudin, A. L.—27.
Burleson, T. W.—336.
Capponi, Eng.—342, 343.
Cowering, J.—121.
Del Valle, R.—61.
Diebel, J. H,—171.
Hagler, W.—245.
Honeydale—181.
House—115, 127.
Jewell, E. W.—373.
Kansas—361.
Koukinsk—407.
Leach, H. M. & Sons—354.
Macklin, Chas.—416.
Mendleson's, M. H.—47, 48, 49.
Mexican—217, 224, 225.
Mize, C. D.—37, 372, 373.
Moving on trucks—93.
Norton, J G.—307.
Parker, E. W.—279.
Russian—17.
Scholl, L.—404.
Seiffert, J. H.—131.
Shults, R. A.—245
Sires & Sires—382.
Smoyer, Dr.—53.
Thomas, W.—131.
Tiflis—16, 18.
Unknown—377.
Warner—52.
West, Judge—405.
Wilder, J J.—122, 123, 124, 125, 258.
Woodman, A. G.—120.
Wright, W. D.—26.
Apple Blossoms—145.
Aster—331, 332, 333.
Auto, Burleson—21.

Baldensperger, Henri—196.
Baldensperger, Ph. J.—234.
Bean—80.
Bean Field—47.
"Beans," nectarivorous, etc.—303.
"Beans," counting—304.
Bee Club—49.
Bee Costume—304.
Bee Dress—203.
Bee, wax plate of—339.
Becker, C.—278.
Bees on Girl—253.
Berry, Coral and Snow—54.
Birch, Yellow—80.
Blackberry, Wild—162.
Brood in all Stages—289.
Building, Pettit—128.
Burleson, T. W.—21.

Cactus and Mesquite—296.
Can for Feeding—379.
Chincapin—260.

CLOVER—
Cutting—84.
Field—8, 85.
Leaf—7.
Red Blossoms—238.
Taking Soil From—84.
Colony, A—23.

CONVENTION GROUP—
Ames—242
Beeville—297.
Denmark—276.
Edwards—297.
Minnesota and Wisconsin—384.
Missouri University—204, 205.
New York—26.
North Carolina—99.
Pennsylvania—383.
Rome—305, 306.
Texas Inspectors—168.
Waco Beekeepers—403, 405.
Corn Chop—126.
Covers, double—421.
Crates, for Live Bees—413.

Del Valle, R.—51.
Donnegan, John—381.
Doolittle, G. M.—227.
Doolittle & Clark—227.

Escholtzia, California—91.
Exhibit, Antigo—24.
Extracting Tent, Engle's—378.
Extracting Room, Mendleson's—48.

Fabre, Henry—156.
Factory, Lewis—44.
Feeder, Hubbard—87.
Feeder, Penn—14.
Feeder, Saunders—349.
Fence, Cane—224.
Fir, Balsam—80.
Frame, Quinby—152.

Girls Sorting Foundation—267.
Godfrey, Mattie—22.
Grass, Joint—231.
Greiner, F.—191.
Greiner, G. C.—191.

Heliotrope—201.
Hemple, Winter Case—20.
Hibiscus—230.
Hillman, Mrs. and Babies—325.

HIVE—
Adair—151.
R. A. Ashcraft's—376.
Concrete—386.
Deiner—158.
Double Walled—19.
Huber's—152.
Huish—271.
Leaf—152, 153.
Noble—308.
Open—225.
Parent—377.
Russian—1, 109.
Single Walled—19.
Slat—115.
Split Log—117.
Honey Board, Crane—56.
Honey Heating Outfit—272.
Honey House Ventilated—385.
Honey House, Scholl—404.
Honey Packed—89.
Honey Plants of Texas—295.
Horsemint—65.
House, Concrete—20.
House, Dwelling—52.
Houses, Mexican—189, 223.
Huisache—189.

Implements, Beekeeping—116.

Jackson, W. E.—188.
Jerusalem—195, 235.

Kootenaie, Hive Case—19.

Langstroth, L. L.—368.
Lilac, Wild—160.
Loquat, Blossom—58.
Lumber, Lewis—43, 45.

Maldonado, B.—194.
Mendleson, M. H.—47.
Mesembry, Anathemum—202.
Mill, Lewis—44
Mize, C. D.—381.
Mustard Bloom—73, 91.

Neighbor's Path—202.

Oak, Poison—161.
Office, Lewis—44.
Oxalis—13.

Package of Bees—372.
Palmetto, Cabbage—229, 408, 409.
Palmetto Grove—410.
Palmetto, Saw—259, 409.
Poppy Field—92.
Porter, T. V. and Wife—376.
Propolizers—262.

Quinby, Moses—367.

Red Bud—168.
Rose, Wild—81.

Sage—201.
Schmidt, Geo—418.
Serra and Brenner—51.
Snapdragons—201.
Soap Bush—296.
Spanish Bayonet—298.
Stephenson, L. and Cactus—188.
Strawberry Blossoms—57.
Sunflower—81.
Swarm, Mrs. Appler and—12.
Swarm Catching—304.
Swarm, on Auto—420.
Sweet Clover fed—9.

Thistle, Star—340.
Tupelo Gum—261, 263.

Warehouse, Lewis—45.
Watering Place—165, 374, 411, 412.
Wax, in Stockroom—267.
Wax, Sheeting—266.
Whitney, W. M.—98.
Wilder, J. J.—231.
Willow—79, 159.
Winter Case—13, 20, 344, 345.
Winter Entrance—309.
Woodman—120.

Yucca—130.

## CORRESPONDENTS

Aeppler, Mrs. C. W. —131.
Aeppler, C. W. —12, 19, 132, 380,
Ames, A. C.—236.
Anderson, John—192, 308, 341.
Archdekin, J. F.—117.

Baldensperger, Ph. J. —63, 195, 234, 375.
Baldwin, F. M.—200, 353.
Banta, R. R.—312.
Bartz, H. E.—61.
Beaver, H. W.—167.
Bebb, L. E.—24.
Bickford, R.—410.
Bixler, J. M.—383.
Bonney, A. F.—167, 202, 242, 275, 344, 417, 419.
Bowen, A. H.—413.
Brenner, H.—51, 86, 194, 422.
Brimhall, C. W.—165, 309.
Brunnich, Dr.—309.
Bull, John C.—25, 62, 263, 387, 409.

Capponi, Engineer—344.
Carr, E. G.—25.
Chadwick, P. C.—124, 134.
Chenoweth, A.—383.
Clark, P. G.—227.
Coppin, A.—333.
Coverdale, Frank---23.
Crane, J. E.—66, 87.
Crowl, E. D.—309.

Dadant, C. P.—9, 13, 68, 116, 161, 156, 200, 229, 257, 271, 366, 374, 416.
Davis, D. A.—338.
Demuth, Geo. S.—267, 305.
Deveneau, Geo. A.—206.
Deimer, J. F.—9, 168, 405.
Dunham, F. A.—278.
Dutcher, R. A.—92, 129.

Eastman, A. S.—203.
Engle, C. S.—378.

Farrell, P. S.—61, 242.
Fowler, C. E.—278, 343.
France, F. F.—88.
France, L. V.—381.
Fyfe, J.—385.

Gallop, Chas.—98.
Gano, Chilton—14, 60, 158, 192, 228, 299, 337, 377.
Gardiner, A. A.—421.

Garre, J.—61.
Gates, B. N.—99, 168. 205, 225.
Gibbs, O. H.—412.
Gillett Bros.—24.
Gorbatcheff, C. A.—16.
Gray, P. N.—63.
Greeley, L. A.—130, 345, 349.
Greiner, F.—27, 163.
Greiner, G. C.—55, 85, 191.
Griffith, W. C.—98.
Grubb, J.—349.

Haack, F.—131, 349.
Hartle, Birdie M.—23, 61.
Hassinger, E.—419.
Hayes, G. F.—59.
Heron, J.—345.
Hockensmith, A. R.—204.

Johnson, I. E.—384.
Jones, J. D.—346.

Kaufman, J. D.—348.
Keene, O. A.—26.
Keister, L. K.—23
Kennedy, B.—347.
Kenyon, I.—205.
Kerr, L. E.—61, 419.
Kindig, B. F.—25, 62, 97, 383.
King, E. C.—419.
King, Mrs. M.—95.
Kingsmill, Geo. F.—134.
Kittinger, F.—165.
Kneser, J.—88.
Kommer, E.—61.
Kopt, C. M.—24.

Lathrop, H.—125.
Lein, E. F.—121.
Lemon, G. E.—149.
Lester, H.—385.
LeStourgeon, E. G.—168
Livingston, T. W.—384.
Lovell, J. H.—77, 270.

MacDonald, D. M—239, 274, 297
Manley, B. A.—61, 348.
Markman, F.—205, 382.
Marsh, E. H.—24, 45.
Massie, T. K—307.
Mendleson, M.—24.
Merrill, I. H.—48.
Millen, F. E.—63, 133.
Miller, A. C.—262, 379.
Miller, C. C.—28, 29, 64, 65, 100, 101, 102, 134, 135, 136, 168, 169, 170, 171, 172, 206, 207, 233, 243, 244, 245, 279, 280, 281, 313, 314, 315, 316, 317, 350, 351, 352, 387, 388, 389, 422, 423.
Miller, E. S.—27.
Miller, H. B.—341
Morse, J.—95.
Mott, E. E.—61.

Noble, D. C.—308.
Noel, Clara T.—21.

Odier, P.—203.

Pammel, L. H.—54.
Pangburn, W. S.—231.
Peck, N. W.—302.
Pellett, Frank C.—7, 20, 21, 43, 60, 84, 87, 93, 97, 120, 132, 187, 206, 223, 238, 240, 266, 295, 331, 336, 346, 372, 379, 381, 403, 408, 410.
Penna, Enrico—422.
Perry, M. F.—130.
Pettit, M.—17, 94, 127, 152, 197, 373.
Phillips, E. T.—234. 277.
Phillips, M. G.—90, 126, 164, 198, 237, 269, 342, 380, 416.
Pierce, Chas. L.—345.
Piersall, P.—23.
Pillsbury, F. M.—127.
Porter, Al—23.
Porter, T. V.—376.
Pryal, W. A.—47, 129, 273, 385, 405.

Queen, D.—17, 61.

Ranum, G. M.—272.
Rey, T.—385.
Ridley, J. E.—23.
Robinson, T. P.—16, 20, 421.

Saunders, B.—349.
Schunckel, B.—272.
Scott, J. S.—59, 267, 345, 386.
Seiffert, J. H.—131.
Sevalle, M.—300.
Shallard, Major—279.
Sheppard, W. J.—19, 89, 123, 412.
Sherman, L.—61.
Sires, Mrs. A.—382.
Sites, Lue—270.
Smith, H. R.—346.
Smith, J.—89.
Smith, L. B.—26.
Sommer, Anna—277.
Stuart, C. D.—57, 91, 201, 303, 340, 411.
Surface, H. A.—63.
Swinehart, J.—61.

Thomas, W.—131.
Timm, O. E.—133, 277.
Todd, Dundas F.—15, 161.

Ullman, M.—203.

Varnie, S. M.—61.
Veith, A.—345, 386.
Verret, J.—346.
Vollmer, Wm.—28.

Walker, R. S—301.
Warren, I. H.—23.
Watts, H.—61, 95.
Welsford, E.—405.
Wilder, J. J—52, 122, 157, 193, 306.
Wiley, C. H.—349.
Wilson, Miss Emma—22, 23, 60, 131, 166, 167, 203, 240, 241, 275, 276, 311, 382, 418.
Wright, Miss D. Q.—347.
Wysong, M—343.

# CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

## BEES AND QUEENS

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

QUEENS—Bees by parcel post and we pay the postage. Will ship Italian bees this year from our own yards; they are hustlers. A few pounds of honey next year at 25 to 30c per pound will ay for your packages of bees. We shipped thousands of pounds last season. We are booking orders now, one-fourth down, balance at shipping time. We are going to winter 1,000 young tested queens reared in October, so can ship tested queens as early as you want them.
One 1-pound package bees, prepaid............$2.90
One 2-pound package bees, prepaid........... 5.00
One 3-pound package bees, prepaid........... 7.00
Select untested queens ........................$1.50 each
Tested queens ........................................ 2.50 each
Select tested ........................................ 3.00 each
10 per cent discount on orders amounting to 25 packages or more. Add price of queen wanted when ordering packages of bees. Breeders, $5 and $10. Send for Free Circular giving details. Reference: The Guaranty State Bank, Robstown, Tex., or the City Nat. Bank, Corpus Christi Tex.
Nueces County Apiaries, Calallen, Tex.

WANTED—Am in the market for 20 to 30 colonies of Italian bees. State what you have, and price. Box 202, Socorro, N. Mex.

FOR SALE—Good second-hand 60-lb. cans, 2 to the case, at 50 cents per case in lots of 50; will exchange for honey.
E. B. Rosa, Monroe, Wis.

NO MORE QUEENS this season. Root's beekeeers' supplies.
A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
Garden City Apiaries,
San Jose, Calif.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
H. G. Dunn,
The Willows, San Jose, Calif.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

QUEENS—H. D. Murry's strain of 8-banded Italians; reared by the Doolittle method. Prices untested, 1 for $1, 6 for $5, 12 for $9. No disease. Safe arrival and satisfaction guaranteed.
O. D. Rivers,
Route 4, Honey Grove, Texas.

FOR SALE—Colonies of extra fine strain Italian bees, with select tested queens, in new 1-story 8-frame single wall-hives, standard full-depth, self-spaced Hoffman frames, $10 each, f. o. b. here. The bees are free from disease.
Wilmer Clarke, Earlville, Madison Co.,N.Y.

## HONEY AND BEESWAX

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

FOR SALE—Clover, heartsease, extracted 25c per lb., 60-lb. cans.
W. A. Latshaw Co., Carlisle, Ind.

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section.
Charles Israel Bros.' Co., Inc.,
486-490 Canal St., New York.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered.
The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa, Monroe, Wis.

FOR SALE—About 3 000 pounds basswood and 1,500 pounds clover extracted honey in new 60-lb. cans, two cans in box, for 25 cents a pound, cash.
J. P. Goodwin,
South Sioux City, Nebr.

FOR SALE—50,000-lb. carload extracted alfalfa-sweet clover honey, subject to best cash offer f. o. b. Delta, Colo.
Gale H. Patterson, Delta, Colo.

## WANTED

WANTED—Experienced bee man; salary and percentage of net profits, to begin work in December. Students' Bee and Honey Co,
1421 Josephine St., Berkeley, Cal.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

TRY AN ADD in this department to sell that good equipment which you no longer need. Our want ads do the business.

CASH for extracted honey, white and amber, in 10-pound cans.
Thomas Lang,
1672 N. Halsted St., Chicago, Ill.

WANTED—Samples of honey from the different plants for our office collection. We will pay for the honey and send a parcel post can for mailing. Samples to be of value should be from one kind of flowers only and unmixed with honey from other sources, as nearly as possible. A pint will be sufficient for each kind, but we wish to secure samples of the same kind of honey from several widely separated localities.
American Bee Journal, Hamilton, Ill.

## FOR SALE

FOR SALE—20 ten-frame Danz hives with full depth supers, with combs; 50 comb-honey supers with sections and foundation; 10 lbs. Dadant thin surplus foundation; queen excluders, drone traps; 200 bottom boards and covers. Also some 8-frame extracting supers with combs. Chester E. Keister, Clarno, Wis.

FOR SALE—Copies of American Bee Journal, 1902 to date, 25 cents each, post paid.
M. D. Smith, Preston, Iowa.

FOR SALE—Several tons clover and buckwheat honey, well ripened; 60-lb. cans 2 to case. H. F. Williams, Romulus, N. Y.

FOR SALE—Cowan extractor and knife; neither used; first $10 takes both.
Chris Smith, Glenwood, Mo.

FOR SALE—Choice buckwheat honey in new 60-pound cans.
O. W. Bedell,
Earlville, N. Y.

FOR SALE—Barnes saw, two-frame extractor, hives and extracting supers, new; at a bargain; cash or honey.
Liberty Press.
Shenandoah, Iowa.

FOR SALE—No. 1 white extracted honey in No. 10 pails weighing 10 pounds gross; $3 per pail f. o. b. here.
B. F. Smith, Jr., Fromberg, Mont.

FOR SALE—Hershiser wax press; used one season; first $20 takes it.
Ed. Swenson, Spring Valley, Minn.

OUR PRINTING SERVICE is unexcelled. If you want labels, stationery or circulars, write for samples and prices.
American Bee Journal, Hamilton, Ill.

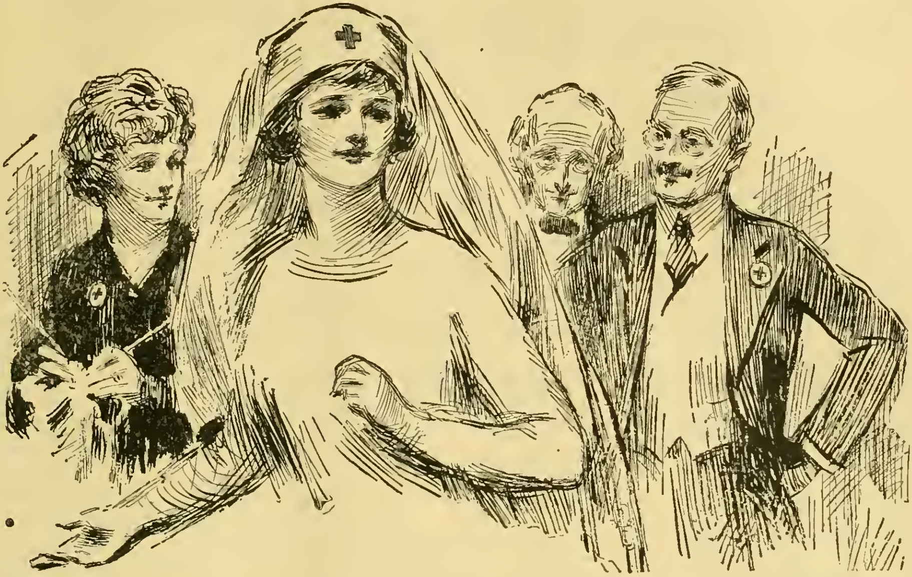
FOR SALE—40,000-lb. car of white extracted clover-alfalfa honey; state best offer, f. o. b. Hardin, Mont., in first letter. Sample if wanted. S. F. Lawrence, Hardin, Mont.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

FOR SALE—40 stands hybrid bees, with at least 50 lbs. honey in each; hives are Langstroth simplicity, 10-frame; want $7.50 each. Never had disease in this locality. Will sell one stand or all.
F. W. Schafer,,
Eddyville, Iowa.

## MISCELLANEOUS

SONG—"The Plea of the Bee," or "The Honeybee Doing Its Bit." Words by Anna Hosea; music by Barclay Walker. Sent to any address on receipt of 15 cents.
The Cutting Publishing Co.,
910 Merchants Bank Bldg., Indianapolis, Ind.



## One member in a family is not enough

EVERY man and woman in the country, not in khaki or navy blue, should answer "present" to the Red Cross Christmas Roll Call the week of Dec. 16-23.

A message of good cheer will be sent overseas this coming Christmas Eve, to hearten our fighting boys and our Allies.

That message must be complete—there must be no room for doubt that we stand behind them—it must bear the word that there is *Universal Membership* in the Red Cross—*their Red Cross.*

Let us make our second Christmas at war a Red Cross Christmas—with full membership in every American home.

*All you need is a Heart and a Dollar*

RED CROSS CHRISTMAS ROLL CALL

December 16-23

Contributed Through
Division of Advertising

ADVERTISING TO VICTORY

United States Gov't Comm.
on Public Information

*This space contributed for the Winning of the War by*
The Publishers of This Journal

# Crop Report and Market Condition

Compiled by M. G. Dadant

Since our last report, the report of the bureau of crop estimators has come out. They estimate the average production per colony for 1918 at 37 pounds per colony, whereas, in 1917 it was 36 pounds per colony, showing that the crop is about the same as last year, with a much greater demand except for foreign markets, which have been cut down by the lack of available shipping space. There is little likelihood of any great change here for some time to come, or until this crop is all sold.

As stated last month, most of the honey is out of the hands of the producers, very little being offered for sale otherwise than through commission men and retailers.

The price ranges about as before, from 19 to 23 cents for amber and from 22 to 25 cents for white in car lots.

### Demand for Bees

It appears that there is already a great demand for bees in packages for next year. Some breeders state that they already have all the orders they can fill, so that it appears certain that increase will be maintained at least through next season. Opinions of experts are that prices of food stufs are not apt to decline for a year or two, owing to the enormous quantity of such commodities required to revictualize European countries.

Relaxation in the sugar restrictions may have some effect on the demand for honey, but hardly enough to affect the demand for honey of this year's crop.

The report of the Bureau of Markets follows:

---

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureal of Markets

Honey arrivals since last report:

**Medina, O.**—11,720 lbs from Ohio, 60,030 lbs. from Utah, 58,000 from New York.

**Hamilton, Ill.**—No carlot arrivals.

**Keokuk, Iowa**—No carlot arrivals.

### Shipping Point Information

**San Francisco, Calif., Oct. 31.**—Demand and movement moderate. Cash to producers at country loading points: Extracted per lb., water white supply very light, 22-23½c, sage white, supplies moderate, 20-22½c; light amber, supplies light, 18-20½c. dark amber 18-19c. Beeswax: supplies moredate, 35-37½c.

**Los Angeles,**—Receipts very light. Demand moderate, movement limited, little change in prices. Extracted, per lb.: light amber, alfalfa and sage, 21-22c, mostly 21½c; white sage and orange, too few sales to establish market, asking 23c. Beeswax, 34-36c.

### Unofficial Shipping Point Information

**Caldwell, Idaho, Oct. 31**—188,000 lbs. shipped. Demand moderate, little change in prices. Carloads f. o. b. cash track: extracted, alfalfa, white, 60-lb. tins, 22-23c lb.; comb, fancy, $5.50 per case; No. 2, 5.25-5.35; No. 3, $5.

### Telegraphic Reports From Important Markets

(In many markets in the honey trade the term "jobber" is commonly applied to the original receiver who buys direct from the grower in carlot quantities. However in these reports we use the term "wholesale carlot receiver" to designate the carlot purchaser, while the term "jobber" refers to the dealer who buys in less than carlot quantities from the carlot receiver and who sells direct to retailers. The prices quoted in this report, unless otherwise stated, represents the prices at which the "wholesale carlot receivers" sell to the "jobbers.")

**Note:** Arrivals include receipts during preceding two weeks. Prices represent current quotations.

**Chicago**—1 Colorado, approximately 200 crates by freight from Michigan, 100 crates from Ohio arrived. Supplies light. Demand and movement brisk, prices slightly higher. Sales to jobbers: Colorados, Ohios and Iowas, extracted, per lb., white, 24-27c; amber, 23-25c; comb, No. 1, 29-32c per lb. Beeswax: no sales reported.

**Denver**—Approximately 1,800 cases white comb, 70,000 lbs. extracted arrived. Demand and movement good; little change in prices. Sales to jobbers: Colorado, white comb, 24-section cases, No. 1, $6.30; No. 2, $5.85; extracted, white, mostly 25c lb. Beeswax: cash to producers, 35c lb.

**Kansas City**—1 Colorado arrived. Supplies light. Demand and movement moderate. Quality and condition generally good. Sales to jobbers: Missouri, comb, section cases, No. 1, $8.50; Colorado, No. 1, $7.-7.25; No. 2, $6.50-6.75; extracted, per lb., light amber, 27c; amber, 25-26c. Beeswax: no sales reported.

**Cincinnati**—2 Nevada arrived. L. C. L. and nearby receipts light. Good inquiry, market firm; movement slow on account of high prices; few sales. Sales to jobbers: Extracted, per lb., alfalfa and sweet clover 29c; amber, small lots, 29c. Comb, 24-section cases, No. 1 white, $7-7.25. Beeswax: Demand light, market firm; average yellow, 40-42c lb.

**Minneapolis**—No carlot arrivals. No cars on track. Supplies moderate. Demand and movement good; little change in prices. Sales to jobbers: Colorado, quality and condition good; comb, 24-section cases, white fancy, $7-7.25. Extracted: no supplies on market.

**St. Paul**—No carlot arrivals; no cars on track. Demand and movement good; prices slightly higher. Colorados, quality and condition good. Comb, 24-section cases, $7.50-7.75.

**Spokane**—1 Idaho arrived, 1 car Idaho due, express receipts liberal. Demand and movement active. Sales direct to retailers: White comb, 24-section glass front cases; No. 1, $7.25; No. 2, $7. Extracted, per lb., light amber, alfalfa and clover, 27-30c, according to quality. Sales to jobbers: Idaho, extracted in 100-case lots, white alfalfa, 26-27c per lb; Yakima Valley, light amber and alfalfa, quality and condition fine, 27½c per pound.

**Philadelphia**—276 cases containing 10 gallons each of extracted from New York, 150 from Vermont, 2 barrels from Florida, 883 24-section cases comb from Vermont, 296 from New York, 8 from New Jersey, 24 from Virginia, 46 from Pennsylvania arrived. Few sales to manufacturers. Extracted, per gallon, Porto Rico, $2.40; New York comb, dark amber, 22-23c per lb.

**St. Louis**—Supplies very light. Demand and movement good. Sales to jobbers: Extracted, per lb., Southern, barrels, amber, 25-26c; cans, 26-28c. Comb: No supplies on market. Beeswax, 41c lb.

**New York**—279 barrels and 25 tierces from Porto Rica arrived, 149 bags beeswax from Porto Rica arrived. Receipts moderate. Demand and movement good. Market firm. Sales to jobbers: Porto Rica, extracted, per gallon, $2.25-2.40; California, light amber, $3.00-3.25; Southern extracted, per lb., 18-25c; buckwheat, comb, 24-29c. Beeswax: Demand and movement good; market firm; yellow, 38-45c per lb.

---

This is Jubilee Day, and so I am sending you a sprig of sweet clover plucked the 11th day of November, 1918. This looks good for a crop next year. We have had fine rains this fall and everything looks fine here. Democracy is assured for the world; let the Lord be praised.

Yours in the work,
R. A. MORGAN.

Vermillion, S. D., Nov. 11, 1918.

Many thanks for the letter. It is certainly wonderful to have blossoms of sweet clover on November 11, in South Dakota. That gives the lie to the old saw, that the Dakotas have only two seasons—winter and the 4th of July.

Yes, the 11th of November will remain as an international Jubilee, and the finest part of it is that it will be as much of a jubilee for the Central Empires, which will have become republics. We will certainly celebrate it regularly.—Editor.

### Announcements

As we go to press we are advised by Secretary Bull that the Chicago Northwestern Convention is postponed on account of the influenza.

Committee Chairman T. R. Gorton requests us to announce that a meeting of the beekeepers of Chenango County, New York, will be held at Norwich on December 14 to effect a permanent organization.

### TOO LATE TO CLASSIFY

WANTED—1,000 mink, muskrat and weasel skins; will pay highest prices to get them. I grade furs as follows:

| | Extra Large. | Large. | Medium. | Small |
|---|---|---|---|---|
| Mink, dark........ | $12.00 | $9.50 | $6.50 | $5.00 |
| Ordinary ............ | 9.50 | 7.50 | 5.50 | 3.50 |
| Muskrat ............ | 3.25 | 2.25 | 1.50 | .90 |
| White weasel .... | 3.00 | 2.25 | 1.30 | .85 |

Unprime or damaged furs according to value. Prices and grading guaranteed. Send me a trial shipment by parcel post and you will ship again.

A. H. Bentz,
Granton, Wis.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item,** a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping,** or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## PAINT WITHOUT OIL

**Remarkable Discovery That Cuts Down the Cost of Painting Seventy-Five Per Cent**

**A Free Trial Package is Mailed to Everyone Who Writes**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

BUY

## THE FAMOUS DAVIS GOLDENS

**And get big yields from gentle bees. Write for Circular and Price List.**

**BEN G. DAVIS,**
**Spring Hill, Tennessee.**

## Prepare for a Big 1919 Crop of Honey

By ordering your supplies promptly, also make a saving on purchase prices, as we are offering attractive discounts for early orders. Remember, we carry the most complete line of Lewis Bee Supplies and Dadant's Foundation, also Honey Extractors in the East, and our location on the Main Trunk Lines gives us the best shipping facilities.

Send us a list of your requirements, and we will quote you a price that will please you. We would also be pleased to quote you on Glass Jars and Friction Top Pails.

**THE DEROY TAYLOR CO.**
**Newark : Wayne County : New York**

## A HOLIDAY SUGGESTION

### "Our Backdoor Neighbors"

By FRANK C. PELLETT

**Author "Productive Beekeeping" and "Practical Queen Rearing"**

A delightful account of the author's personal experiences with wild creatures. Every illustration from life.

**Price postpaid, $1.50; with "Productive Beekeeping," both, $3. With "Practical Queen Rearing," both, $2.25; all three, $3.50.**

### "The Flower and The Bee"

By JOHN H. LOVELL

A popular exposition for beekeepers and flower lovers of the far-reaching subject of pollination in general. With many illustrations.

**Price $2. With "Our Backdoor Neigbors," both, $3.25.**

**AMERICAN BEE JOURNAL, Hamilton, Ill.**

## Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**

**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

BEEKEEPERS!

DO YOUR BEST TO SUPPLY THE WORLD'S NEED OF SWEET DURING THE YEAR 1919.

KEEP MORE BEES. GIVE THEM UP-TO-DATE CARE. MAKE THEM PROFITABLE.

WE CAN HELP YOU BY MAKING PROMPT SHIPMENTS OF ALL STANDARD HIVES AND FIXTURES USED BY PROGRESSIVE HONEY PRODUCERS.

WE WILL BUY ALL THE GOOD HONEY YOU HAVE TO OFFER AND PAY TOP PRICES.

A CATALOG FOR THE ASKING.

**Western Honey Producers**

1929-1931 Fourth Street SIOUX CITY, IOWA

CANS AND SHIPPING CASES

We have a fine stock of Five-Gallon Cans and Shipping Cases; also Comb Foundation, Extractors, Honey Tanks, etc. Quick shipments.

MADE RIGHT
BEE SUPPLIES
*Quality ... Service*

**THE KRETCHMER MFG. CO.**
301 Eleventh Avenue
Dept. A COUNCIL BLUFFS, IOWA

**LEUTZINGER & LANE**

Wholesale Dealers and Shippers of

Extracted and Comb Honey

Cor. Drumm and Oregon Sts. SAN FRANCISCO, CALIFORNIA

Western Beekeepers Attention

We pay spot cash for Honey, and do not handle on commission. Write us what you have, or expect to have, to sell. We buy any quantity.

Write for Price List and Booklet descriptive of
HIGH GRADE
Italian Queens
JAY SMITH
Route 3
Vincennes, Ind.

Weis Fibre Containers

FOR EXTRACTED HONEY

Neat, clean, leak-proof, and inexpensive. Especially adapted for home market.

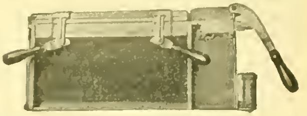
Send for prices. Samples, postpaid, 15c in stamps.

**M. H. HUNT & SON, Agents**
LANSING, MICHIGAN

**Don't stop advertising.** because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

EAT HONEY
NATURE'S OWN SWEET—AIDS DIGESTION

Price of 1,000 gummed, 35c.
American Bee Journal Hamilton, Illinois



PAT. APPLIED FOR

C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

MARSHFIELD GOODS

**BEEKEEPERS**

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

**EARLY ORDER DISCOUNTS WILL**

**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

**WILL SELL AT WHOLESALE**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

**A BIG STOCK OF**

**BEE SUPPLIES**

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers. Send for a price list. **I can save you money.**

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

**PORTER BEE ESCAPE SAVES HONEY TIME MONEY**

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**

(Please mention Am. Bee Journal when writing)

**Comb Honey Shipping Cases**

**Our shipping cases are all accurately made of nice basswood lumber. This makes a very attractive, neat and strong package.**

Send for our Catalogue.

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

**WESTERN BEEKEEPERS!**

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4.25; doz. $8.00 select tested, $1.25.

Package bees, $1.60 per pound. Packages with queen, 1 pound and queen, $2.35; 2 pounds and queen, $3.35; 3 pounds and queen, $4.35.

My package is best and lightest in use. Saves bees and express. Satisfaction guaranteed, but bees in transit more than 5 days are sent at customer's risk. No disease.

**J. F ARCHDEKIN,**
**Bordelonville, Louisiana**

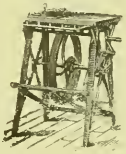
**BEE SUPPLIES**

**Let Us Figure With You**

We know we can satisfy you on price and $8.00; select tested, $1.25.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

**BARNES' Foot-Power Machinery**



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# We Want to Help You

Get more honey and make more money. Our fifty years' experience making beekeepers' supplies and appliances has taught us how to make hives, frames, smokers, extractors and other appliances as perfectly as it is possible to make them.

To best serve the interests of beekeepers everywhere is our aim. We have branch offices for the convenience of our customers in all large cities. Write us direct for any information you may want.

**The A. I. Root Company, Medina, O.**
Established 1869
**Publishers of "Gleanings in Bee Culture"**

---

# BECAUSE IT LASTS

## That is One Argument in Favor of Cypress as a Beekeeper's Lumber

CYPRESS RESISTS ALL ROT INFLUENCES

CYPRESS LASTS PRACTICALLY FOREVER

There are many qualities that make the value in lumber, depending, of course, on the uses to which they are put. But of all virtues that of **endurance** comes first. The wood that resists rot influences longest, especially when the wood is used in a service by which it is exposed to wet and dry conditions and earth contact—that wood is accredited with being able to give the user the greatest INVESTMENT VALUE.

No use tries the lasting qualities of lumber greater than that of Bee Hive construction. It is the very deuce to get lumber that will not too readily rot—unless one gets Cypress lumber. Then there is a good show for endurance that means **real money saved on repairs you don't have to make.** Try it, Mr. Beekeeper.

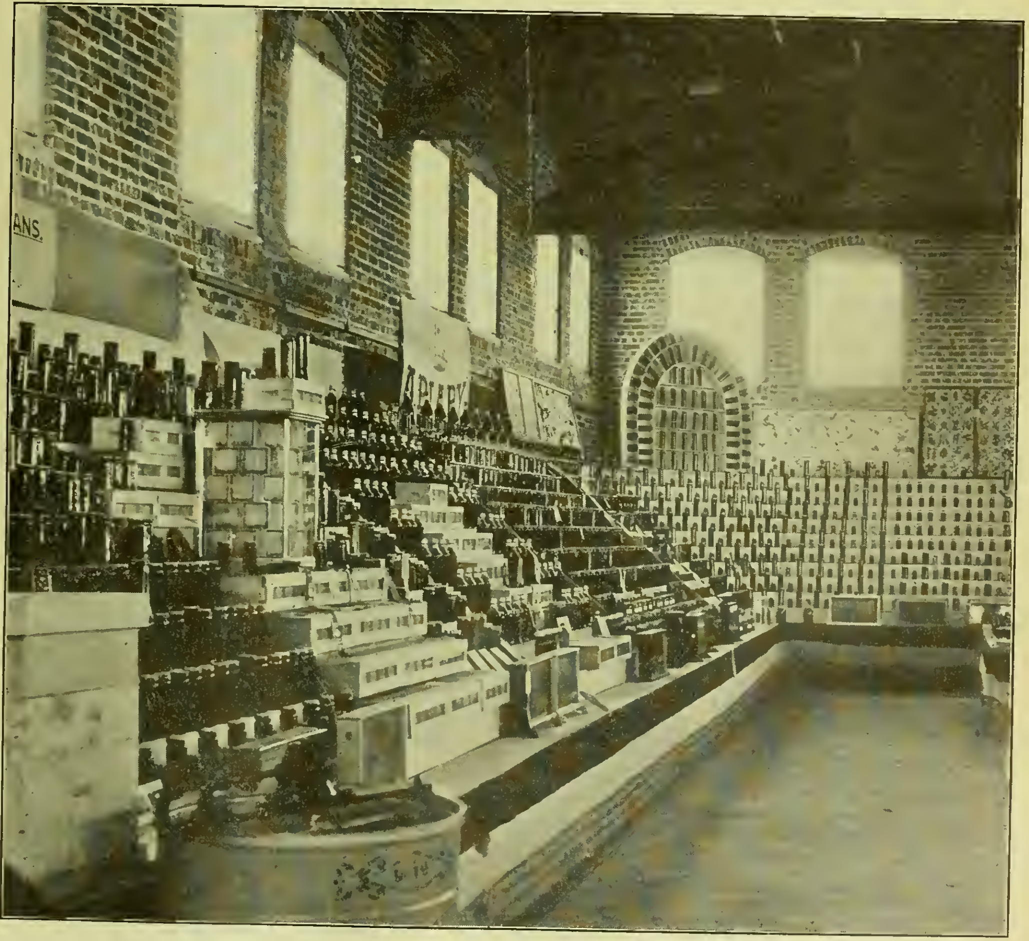
### STUDY THE WOOD QUESTION

There's one way to get at this matter of endurance—through books of authority. Such are the 43 volumes of the internationally famous Cypress Pocket Library. These books are not "advertising"—they are authoritative references on file in the libraries of scores of technical schools and National institutes. Ask for Vol. 1 to start with; it contains the complete U. S. Govt. Rept. on Cypress, "The Wood Eternal," and a full list of the other volumes; then branch out until you cover the subject.

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**
1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA. — 1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.
FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

# AMERICAN BEE JOURNAL

JANUARY, 1919



BEE AND HONEY DISPLAY AT THE KANSAS STATE FAIR, HUTCHINSON, SEPTEMBER 14 TO 21
The exhibitors were: A. D. Raffington, J. A. Nininger, Roy Bunger, A. V. Small, W. A. McCormick and Cloverdale Apiary

# Ready Money for Your Honey

**SHIP IT NOW**

If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

**PROMPT REMITTANCE**

Remittance sent by return mail for every shipment we receive. Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

**OLD COMBS and CAPPINGS**

Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED---COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

## Our New Home

We are now located at Pearl and Walnut Sts., and have the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

## We Sell Lewis' Beeware

"Lewis" stands for the highest quality Beeware known. It is safe and reliable. "Made like furniture." We are glad to fulfill your needs.

**SEND FOR OUR 1918 BEE CATALOG**

**DADANT'S FAMOUS FOUNDATION**

**ROOT'S SMOKERS and EXTRACTORS**

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
CINCINNATI, OHIO

# Four Bee Books

**YOU SHOULD HAVE**

# IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**

Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**

Mailing weight, two pounds

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**

Mailing weight, one pound

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

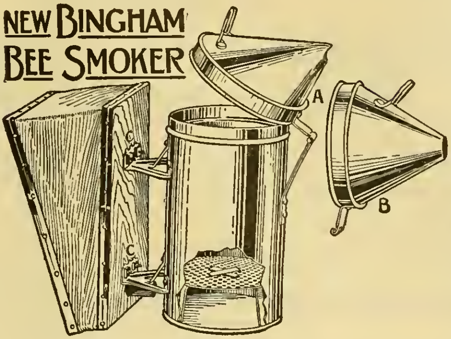
**Price $1.50**

Mailing weight, three pounds

**ALL FOR SALE BY**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILLINOIS**

# New Bingham Bee Smoker



In 1878 the original direct draft Bee Smoker was invented and patented by Mr. T. F. Bingham, of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey Knife for nearly thirty-five years, and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general beeware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men, and it gives us much pleasure to help perpetuate his name in the beekeeping industry.

Bingham Smokers have been improved from time to time, are now the finest on the market, and for over forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies, or direct from the manufacturers.

| | Size of Stove | Weight | Retail |
|---|---|---|---|
| Smoke Engine | 4 x7-inch | 2¼ lbs. | $1.50 |
| Doctor | 3½x7-inch | 2 lbs. | 1.15 |
| Two above in copper, extra each | | | 1.00 |
| Conqueror | 3 x7-inch | 1¾ lbs. | 1.00 |
| Little Wonder | 3 x5½-inch | 1¼ lbs. | .80 |

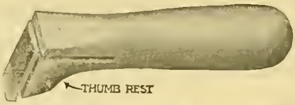
Hinged cover on the two larger sizes. Postage extra.

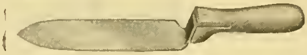
**A. G. WOODMAN CO., Grand Rapids, Michigan**

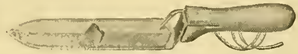
## BINGHAM HONEY UNCAPPING KNIVES

WITH NEW COLD HANDLE

We are furnishing the same quality steel, best money can buy, thin-bladed knives that Mr. Bingham manufactured years ago. The old-timers all remember these knives and many are writing in, as Mr. Volstad in the following letters. The substitutes offered by others have not given the satisfaction desired.







Lyle, Minn., June 21, 1917.

*A. G. Woodman Co.*

Gentlemen: Have you the thin, good working uncapping knives we used to get about 20 years ago and that worked to perfection?

K. H. VOLSTAD.

We sent an 8½ and 10-inch knife and received the following letter:

Lyle, Minn., July 5, 1917.

*A. G. Woodman Co.*

Gentlemen: Knives received; glad you sent them at once. They are just what I want and have been looking for, but did not know where to get them.

K. H. VOLSTAD

Many of the most extensive honey producers insist on the Genuine Bingham Knives. Mr. N. E. France, of Platteville, Wis., gave us a fine unsolicited testimonial on the steam-heated Bingham Knife, too long for this space.

| | Weight | Price |
|---|---|---|
| 8½-inch blades | 12-oz. | $1.20 each |
| 10-inch blades | 14-oz. | 1.35 each |
| 10-inch blades, steam heated, with tubing | 20-oz. | 4.00 each |
| Steam Generator, with safety valve | 40-oz. | 2.00 each |
| Double Burner Oil Lamp Stove | 7 lbs. | 2.00 each |

Postage extra

**A. G. WOODMAN CO., Grand Rapids, Michigan**

## TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612.
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60-pound Cans, giving quantity wanted.

**A. G. WOODMAN CO., Grand Rapids, Mich.**

"falcon" **IT MEANS** "falcon"

**Simply This:** We have got to "carry on" with all our might and with more "pep" than ever before. You are urgently requested to prepare to do your part when the time comes to "carry in" the enormous honey crop for which we must prepare.

PREPARE IN THE RIGHT WAY BY ORDERING EARLY

This will save time, money and honey, and will be gratifying to your ambition to help your country and fellow citizens. Let them have a good quality of honey and lots of it. **You Can Do It.** Get the goods that you are going to need and have them ready for the beginning of the season. To make this more of a saving to you, we are giving an **early order cash discount of 10% for shipment prior to December 1, 1918.**

**Use only the goods that are tested and known to be the best and most reliable; therefore, "falcon" goods will give the best results. Our goods are made by experienced and interested workers. This is the reason we are known in every land.**

SEND THAT LIST OF REQUIREMENTS TO US AT ONCE FOR PRICES
Catalog and "Simplified Beekeeping" on request

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Best Beehives Come From**

**Service and Quality**

**Bee Supplies** **Bee Supplies**

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

**C. H. W. Weber & Company**
**2146 Central Avenue** **CINCINNATI, OHIO**

**New Honey Label Catalog**

It is a debated question whether honey will remain at its present price level when normal times come once more. The foresighted beekeeper is the one who will prepare for any contingency, by assuring himself of a steady market, regardless of price fluctuations.

This can best be done by developing the home market to its fullest extent and attractive labels on his packages are one of the most important things to consider when working up local demand for honey. They should stand next to superior product, and neat, clean packages.

Our new label catalog lists many distinctive labels which you will like. Write for your copy today. It is free. Beekeepers' Stationery is also offered.

**AMERICAN BEE JOURNAL, Hamilton, Ill.**

EARLY ORDER DISCOUNTS WILL

**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb. Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

**"SUPERIOR" Foundation**
**Assures Real Quality**
**"BEST BY TEST"**

Manufactured by
**SUPERIOR HONEY CO.**
**OGDEN, UTAH**

# FORTY YEARS *of* SPECIALIZATION

For this length of time we have been specializing on the manufacture of bee-comb foundation, always aiming to make DADANT'S FOUNDATION a little better, if possible.

Running several hundred colonies of bees ourselves, enables us to put our product to a real test in the hives under all conditions. We believe we have a product which cannot be equalled in perfection of sheets, in strength, in carefulness with which it is packed, and in the readiness with which it is accepted and drawn out by the bees.

The many unsolicited testimonials which we receive strengthen us in this belief.

**Read this one from New York**

*Dadant & Sons,* *Syracuse, N. Y., September 26, 1918.*
*Hamilton, Illinois.*

*Gentlemen: Am going to send you one keg of cappings to render and work into foundation for me, for your foundation cannot be surpassed, in my estimation. Put it up in regular Langstroth size, packed in wooden boxes, medium brood grade.*

*Very truly yours,*
*CHAS. G. SCHAMU,*
*President Onondago County Beekeepers' Society.*

**And this one from Texas**

*Kenedy, Texas, June 7, 1918.*

*Enclosed please find bill of lading for beeswax sent by freight, which please hold until further notice. Also 102 pounds by express, for which please send me same amount in medium brood for regular Hoffman frames. Please send this by express as soon as possible.*

*In conclusion I will say that after having used other foundation for years, your foundation is far superior to any I have tried, and I gladly pay express charges both ways in order to get it.*

*Yours truly,*
*M. B. HINTON.*

INSIST ON DADANT'S FOUNDATION WHEN ORDERING OF YOUR DEALER. IF HE HASN'T IT, WRITE TO US.

We also render old combs and cappings into beeswax, work beeswax into foundation and buy beeswax outright.

WRITE FOR PARTICULARS

**DADANT & SONS** HAMILTON ILLINOIS

# MR. BEEKEEPER:

## You Can Help the Work of Reconstruction

BY

**ORDERING YOUR BEE SUPPLIES NOW**

BY

**Ordering Standard Goods, so as to enable manufacturing plants to increase production**

BY

**Wintering your Bees with careful attention to their comfort and safety**

Get busy, now, and make up a list of your requirements. Take advantage of prevailing transportation conditions -- later on it may be more difficult to secure prompt shipment. Remember, every pound of Honey produced will release its equivalent of Butter or Sugar for other purposes of food.

**INCREASE YOUR HONEY PRODUCTION**

**THE ITALIANS ARE OUR ALLIES**

**G. B. LEWIS COMPANY**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS WIS U.S.A.
MAKES THE FINEST

**Watertown, Wisconsin**

**ORDER FROM YOUR NEAREST DISTRIBUTOR**

AMERICAN
BEE JOURNAL

VOL. LVIII—NO. 1 HAMILTON, ILL., JANUARY, 1919 MONTHLY, $1.00 A YEAR

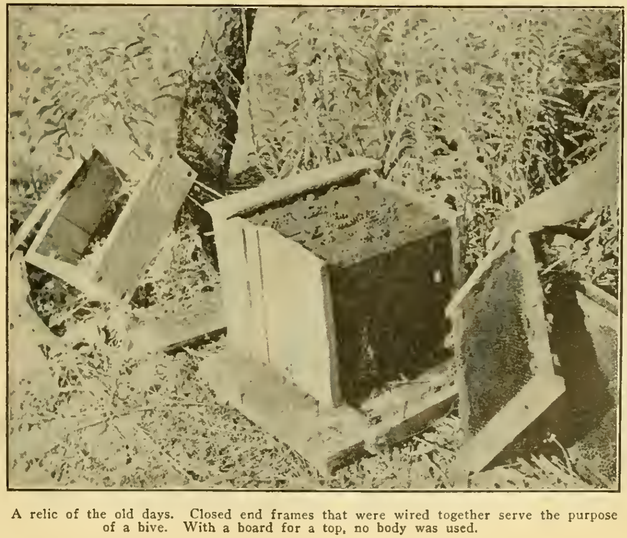
# HONEY PRODUCTION IN KANSAS

## Glimpses of Conditions in the Sunflower State, Where Alfalfa and Sweet Clover Are Rapidly Extending the Area Where Beekeeping is Commercially Profitable

THOSE whose impressions of Kansas have been formed from tales of disaster from drought and grasshoppers that overtook the early settlers of a generation ago, until it came to be known as "Bleeding Kansas," will hardly be prepared for the real Kansas as it is today. Big fields of alfalfa and wheat, herds of sleek cattle and fat hogs are making of Kansas one of the richest of the agricultural States. It is the extension of the area devoted to alfalfa and sweet clover that is attracting the attention of the beekeepers to that State. The Kansas climate is hot and dry during the summer months. It often happens that there is a deficiency of moisture during the crop season. Alfalfa and sweet clover will both endure continued dry weather without serious injury, once they are well established. The extreme heat, together with a dry atmosphere seem to furnish the ideal condition for secretion of nectar from both these plants. If only sufficient moisture remains at the roots to maintain the vigor of the plants a honey crop is almost unfailing under these conditions. The root system of the common white clover or Dutch clover is too shallow to survive the dry summers, except for an occasional season with more than average rainfall. White clover is not much depended upon as a source of honey, and where sweet clover or alfalfa are not grown honey production is an uncertain business. Horehound, heartsease and horsemint are additional sources in many parts of the State which go far to insure success.

As yet the suitable localities for commercial beekeeping are not large in extent. One county may contain good bee pasture, while the next may furnish insufficient pasturage for large apiaries. Like all the States in the central west, beekeeping is in a state of change from the back-yard row of hives to the commercial apiary. In only a few localities are there large commercial apiaries. The success of a good beekeeper is the best remedy for box hives. Where a man is making a conspicuous success of honey production and it is apparent that he is making a good living from the business, the box-hive beekeeper is quite likely to become dissatisfied with the small returns possible with such primitive equipment and either improve his methods or abandon the bees altogether. This is especially true in good farming country where general prosperity is the rule. A man who keeps other equipment on his farm up-to-date, is not proud to have a lot of bees in boxes under his apple trees when his neighbor has good hives and gets a far larger return from the apiary. The writer has noticed this tendency in every locality where commercial beekeeping is being carried on successfully. There are fewer beekeepers in such localities every year, because of the dropping out of the oldtimer who does not have sufficient interest to master the new way.

Commercial orcharding is being de-



A relic of the old days. Closed end frames that were wired together serve the purpose of a hive. With a board for a top, no body was used.

veloped quite profitably in Kansas and in the vicinity of the large orchards beemen sometimes find excellent locations. The Baxter brothers combine beekeeping with apple growing near Ft. Leavenworth. While this kind of combination offers very satisfactory possibilities, there are but few men as yet who have developed the combination on an extended scale. The fruit men are no longer inclined to overlook the value of the bees at blooming time, and not infrequently an orchardist and a beekeeper will combine forces to mutual advantage.

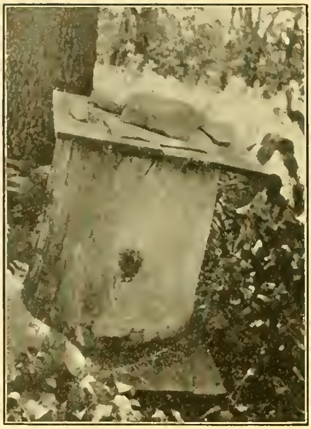
An article in our November issue gave an account of the special conditions in the Arkansas valley. Similar locations are to be found in the valleys of some of the smaller streams in the eastern section of the State. At Emporia the boys' and girls' clubs, under the leadership of Charles A. Boyle, have a membership from all parts of the county. It is readily apparent that members in some sections of the county have a great advantage over others, because of a more favorable location. At Augusta, Carl F. Buck has several outyards which yield a good surplus almost every year. Almost anywhere in eastern Kansas there seems to be a sufficient flora to support the bees, but the amount of sweet clover and alfalfa within reach seems to determine the surplus over most of the territory where the writer has visited.

At Eskridge, Roy Bunger and wife devote their entire time to beekeeping. They are buying large numbers of bees in box hives and transferring them, thus removing many uncared for bees from the locality, while increasing their own apiaries. Bunger is assisting many of his neighbors in getting their bees in shape for proper management.

At Blue Rapids the writer attended a field meeting which was attended by an enthusiastic lot of beekeepers, both men and women. W. E. Axtell, of that place, has been influential in developing local interest in field meetings at that point. While Mr. Atkins was engaged in extension work in Kansas, under the U. S. Department of Agriculture, the Blue Rapids beekeepers made good use of him in connection with their field meetings. Although extension work has been under way for only one season, it has shown results which are highly pleasing to those who have been influential in getting it started. The Kansas boys' and girls' bee clubs under Mr. Boyle's leadership have been among the most successful and have attracted wide attention. We plan to give an extended account of the organization and results of this club work in a later issue.

The study of locality as applied to beekeeping offers some very interesting possibilities. The fact that a considerable variety of well-known honey plants are present does not always insure a crop. The influence of soil and climatic conditions is far more important than has been generally understood. Kansas is farther west than Missouri and has a lighter rainfall, yet apparently Kansas is by far the better State for honey production. The writer is inclined to regard Kansas and Nebraska as among the best States for beekeeping. True, neither of them is, as yet, far advanced in the establishment of commercial apiaries, but the few extensive honey producers are getting large crops and with surprising regularity. It should be borne in mind, however, that there are very large areas in both States that are not suited to beekeeping on a large scale. The prospective apiarist should be exceedingly careful in choosing a location in either State.

Field meeting of Kansas beekeepers at Blue Rapids.



The hollow log hive has not yet disappeared from Kansas.

Roy Bunger and wife, extensive honey producers at Eskridge.

## The Langstroth and Jumbo Hives

By G. Bohrer

ON the first page of the American Bee Journal for November appears the picture of Moses Quinby and an article by the editor. The picture and article bring back to my memory a conversation I had with Mr. Quinby at a convention of beekeepers held at Cleveland, Ohio, during the winter of 1872. I had used the Quinby hive. It was of the eight-frame pattern. The frames of this hive were two or more inches deeper than the Langstroth frame and an inch or more longer. I asked him why he made his frame both deeper and longer than the Langstroth frame. In reply he said: "Where I reside, in New York, the winters are long and the cold snaps

Apiary of O. A. Keene, Secretary of the Kansas Association.

are protracted, and you know bees go into winter at the lower and front part of the hive. In case they consume all the honey in the combs occupied, back to the rear end of the hive, and the combs on either side of the cluster of bees are covered with frost, they cannot reach it and will perish of starvation. With the frames as I use them," said he, "there is more honey above and to the rear of the cluster."

His logic could not be controverted successfully. I at once concluded to use his frames more extensively than I had up to that time. But before I did so I determined to move from where I then resided to central Kansas, which I found not adapted to beekeeping, as there were no honey-yielding plants in this part of the State. I therefore kept no bees until fruit trees began to bear and alfalfa had been introduced. Then I began again keeping bees and have adopted the Jumbo hive body as a broodnest. Bees winter quite well in it. In what are known as the Southern States the Langstroth frame is deep enough, the winters being shorter and milder. So there is no real danger of the bees being caught in the rear end of the hive with the combs frost-covered on either side of the cluster.

Like the writer of the article I have referred to, I find the Jumbo hive containing ten frames better adapted to brood rearing, as it affords more cell room for the use of a prolific queen. A queen that cannot populate a brood nest as large as the 10-frame Jumbo hive is not likely to be of much value.

I have used, and am still using, a few 14-frame Langstroth hives, as such hives afford about as much cell room as the Jumbo 10-frame hive. I find that nearly all the queens in these 14-frame hives fill the cells about as full of brood as the Jumbo. I use these hives for storage purposes by piling one to three bodies on top of each other. With a strong colony of bees in the lower story, they care for the honey until I get ready to extract, which is not at all times convenient.

As a super I use the standard Langstroth hive body, which is a fraction over two inches deeper than the super of the Dadant hive.

As to the use of the queen excluder, I find it almost unnecessary on the Jumbo hive, while on the Langstroth hive about all the really prolific queens go above in search of cells to lay in. So I use the excluder on the few Langstroth hives I have. I have, however, so far failed to notice that the excluder impedes to appreciable extent the matter of ventilation.

In regard to requeening, I have left the bees to attend to this duty. I had one queen to do good work for three seasons. The fourth season the bees superseded her. As far as my observations have enabled me to judge, the bees are not likely to supersede a queen unless she shows unmistakable evidence that she is falling short in keeping up the ordinary strength of the colony.

I have been a patron of the American Bee Journal ever since its first copy was published, and have kept bees during all these years. except the first ten years after locating in Kansas.

The past season, with hives of the capacity I have mentioned, I took, with an extractor, from nine colonies of bees and their increase, 1,250 pounds of fine alfalfa honey and sold nearly all of it at 25 cents per pound.

Chase, Kans.

(Dr. Bohrer is 86 years old, just a little younger than Dr. Miller, and about as vigorous.—Editor.)

### A Letter From Ohio

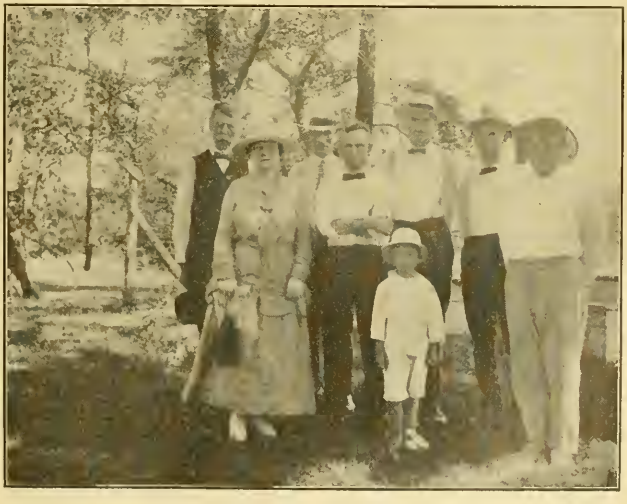
Having kept bees periodically for forty years, I am writing the following suggestions:

Why not use a double or continuous frame for the brood-chamber, so that the queen, being easily disturbed by obstructions, could have continuous laying space in upper and lower stories? The result of this plan is to increase the amount of bees as well as the storage of honey.

My way of introducing virgin queens is to take away all the brood and eggs and make the bees anxious for a queen.

For wintering, it is my opinion that bees are often covered too warm, or rather too much moisture is held by the covering. This freezes and later melts to drip down over the cluster, making moldy combs.

J. A. DOUGHERTY,
California, Ohio.



A group of bee lovers at the Keene apiary at Topeka.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

C. P. Dadant ........ Editor
Frank C. Pellett ........ Associate Editor
C. C. Miller ........ Questions Department
Maurice G. Dadant ........ Business Manager

(Copyright 1918, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

### The Deadly Female

When Kipling wrote that "the female of the species is deadlier than the male," he probably had not been informed as to the truth of that assertion in the generation of the bee. We all know that the male or drone has no sting, that he is perfectly harmless, trusting only to his power of flight to sustain him in his amorous propensities. On the other hand we know that every neuter or worker is an undeveloped female, each possessing a sting capable of inflicting unpleasant wounds and of killing other workers, besides insects, mice, etc. The perfect females, the queens, who have a curved sting, are not fitted for defending themselves against any attacks except those of other fully developed female bees; but those who have witnessed the fights between two queens or the eagerness and cruelty with which a young queen seeks her rivals, even when unborn, to destroy them, must acknowledge that the Kipling assertion is true, that the female honeybee is certainly "deadlier than the male."

These remarks are brought about through the reading of an article in the Literary Digest of November 16, in which Professor Glaser, of the University of Michigan, quotes genealogical studies by Major Charles B. Davenport, "indicating clearly that efficiency in fighting is far more likely to be passed along the maternal than the paternal line of the family. The genius of Caesar, the career of Napoleon, the brutality of Nero, are all traceable to maternal inheritance."

But although the female of the bee is "deadlier than the male," there are some peculiarities of inheritance which do not indicate similar results to those quoted above, by the authorities ascribing deadlier propensities on the maternal side in the human race. Here are a few remarks made among bees:

At the International Congress of Beekeepers held at Paris in 1900, to which I was a delegate from the United States, a French priest, whose name now slips my memory, made the assertion that the characteristics of temper, or gentleness, in bees, were transmitted through the male. He asserted that a black queen, mated with a drone of the pure Italian race, would transmit to her worker daughters, and of course to her queen daughters, the gentle disposition of the Italian bee. On the other hand, an Italian queen, mated with a drone of the restless and cross common bee, would produce bees and queens who would have the same restless and irritable disposition as the black bees from which her mate was issued.

We all know that hybrids from an Italian queen are cross. After the above meeting, I took pains to investigate the behavior of bees produced by the mating of black queens with pure Italian drones, and I found that the theory worked. It was not difficult, at that time, to find such hybrids, for we had numerous neighbors who had never bought an Italian queen, whose bees were almost pure Italians, through mating with our own Italians.

Since that time, I have been inclined to believe that the cross-tempered "Goldens" may be the result of crosses of pure Italian bees with drones of the irritable Cyprian bees.

It would be interesting to know whether others have made similar remarks, or whether the above experiences were only accidental.

However this may be, the fact remains that, among bees, certainly, "the female of the species is deadlier than the male."

### The Oldest Bee Periodicals

Our contemporary bee magazine, L'Apicoltore, of Milan, Italy, in its September number, quotes a statement in our September 1916 number, in which we mention L'Apiculteur of Paris and the American Bee Journal as being the two oldest bee periodicals in the world, also mentioning Gleanings and the British Bee Journal as having been established in 1873. L'Apicoltore reminds us that it was born in 1868. We knew this and mentioned it in October, 1916, and again at the time of L'Apicoltore's golden jubilee, in April, 1917. The mention of Gleanings and the British Bee Journal was not intended to describe them as the next in age to the American Bee Journal. Several bee papers, including L'Apicoltore, were established in different parts of the world between 1861 and 1873. In July, 1917, we mentioned 6 American magazines on bees which were established between those dates. There were also European magazines, especially German and French, but all have closed their careers. So L'Apicoltore may truly claim to be the third oldest bee magazine in existence. Long may it live!

### Change in Texas Conditions

Copious rains in the last few weeks have changed conditions materially in Texas. Many beekeepers were looking forward to a dismal prospect of dry weather, honey dearth and much feeding if colonies were to be saved at all.

Now all is changed. Bees have made considerable honey this fall. In nearly all instances they have filled the brood-chamber so that they will have plenty of honey to winter upon, and in many cases considerable increase has been made and a surplus from the fall flowers extracted.

It is yet too early to indicate just what effect this will have on beekeeping in Texas in 1919, but one has but to read the last issue of the progressive "Beekeepers' Item," published and edited by Louis H. Scholl at New Braunfels, Texas, to see that everyone is elated at the prospect of a return to normal conditions in that great bee state.

### Those California Short Course Meetings

Our associate, Mr. Frank C. Pellett, has spent the whole of the month of December in attendance at the California short courses, where he was on the program for a series of lectures on Bee Inspection and Bee Laws.

All reports coming from him are that this series of lectures is the best he has ever attended, both in point of numbers in attendance and in scope of work outlined.

We hope to be able to give more general information in our February and March numbers.

### An Italian Acknowledgement of Services Rendered

The following resolution by an Italian Beekeepers' and Silk Growers' Museum organization, sent to Washington, was forwarded to us from the Bureau of Entomology, for publication. It gives another illustration of the present feeling in Allied countries, towards the help received, on the battlefields of France and Italy, from the United States:

The Directing Council of the International Museum of Apiculture and Sericulture in Turin, in its solemn session of October 30, 1918, expresses to the great Wilson and to his collaborators, as well as to all the apiculturists of the United States, its sentiments of high esteem, admiration and recognition of the noble deeds which they have performed in Europe for the cause of justice and the peace of the nations.

### Minnesota Inspection

The Minnesota Inspector of Apiaries has published his fourth annual report. It contains a summary of the season's work, a description of foulbrood with cuts, the treatment of both forms of the disease and the Minnesota foulbrood law. It also contains an interesting article from Mr. Carl B. Stravs on the honey exhibit at the State Fair, with recommendations of more extensive exhibits. Beekeepers who expect to thrive in the business should secure this report. Address Chas. D. Blaker, State Apiarist, 4420 Grimes Avenue, Minneapolis.

### Hawaian Beekeeping

"The Hive Bee," is the title of a neat pamphlet of 36 pages published by E. C. Smith, Manager of the Garden Island Honey Company, near Honolulu. The pamphlet is well illustrated and contains some interesting information on honey production in the Islands. It reports the annual output of the apiaries of the Islands at about one thousand tons of honey and twenty-five tons of wax from approximately 20,000 colonies. The honey is, for the greater portion, of dark color and of a molasses-like taste. Insects, especially moths, ants and cockroaches, are the greatest hindrances to profitable beekeeping.

### English Notes

The "Journal of the Board of Agriculture," published in London, contains, in its October 1918 number, 5 pages devoted to bees—feeding for winter, uniting weak nuclei, making syrup, etc.—all practical hints and advice. But the most interesting part of this interesting journal is, to us, the 58 pages devoted to "Women in Agriculture." Indeed, women have shown their ability, during the strenuous days, not only in beekeeping, but in nearly all pursuits in which men succeed. Although it is true that each sex has a more special sphere of work, we cannot deny that women have demonstrated their ability in many lines where they were formerly considered of little worth. The discernment with which they used the "school vote" in Illinois, some years since, has had a great deal to do with the success of equal rights. Welcome to the women, not behind the men, but at their side, hereafter!

### Bees on Shares

The excellent bee magazine, "The Australasian Beekeeper," published at West Maitland, New South Wales, contains in its September number a prize article which we reproduce in this issue. It is very judicious. In truth, "much depends on the apiarist." An efficient man is worth more than half the crop and a neglectful man is of little or no value.

I remember taking care of bees on shares for half of the crop, in my young days, when less than 25 years of age. I had overestimated my ability, in an attempt to care for a number of apiaries many miles apart. It was before the time of automobiles, with bad roads. I came to the apiary in question on a fine June day, when the bees, crowded for room, were swarming strenuously. The owner, a hard-working old farmer, told me plainly that I was not earning my share of the crop. I readily acknowledged my shortcomings, explained the situation and offered to change the conditions of the contract so as to give him entire satisfaction. He was so well pleased with my explanation and my willingness to do the fair thing that he replied immediately:

"Bah! Do the best you can after this and I'll call it square. You're the right kind. You're all right."

The work went on, the bees were supplied with needed supers, the crop was good and we both had cause to be pleased with the results. That old farmer was one of my best friends afterwards, as long as he lived.—C. P. D.

### Bee Physiology

We translate the following from the "Apicoltore Moderno," of Turin, Italy, in its May, 1918, number:

"Abbott Collin ascertained that when queenless colonies are deprived of worker larvæ less than 3 days old, they build queen-cells around drone larvæ instead of worker larvæ. This is because, at this age, the worker larvæ no longer receive the milky food which is given during the first 3 days; while the drones, being slower in development, are still fed with it.

"The size of the pollen pellets carried by the workers of a colony, at any time of the year, but especially in spring, is a valuable sign to recognize the condition of the colony. The bees that do not have any brood to feed, or have but little, do not carry heavy loads of either pollen or honey. So a colony whose bees are seen with their pollen baskets heavily loaded with pollen certainly has a vigorous queen."

We all know that a colony whose bees do not carry pollen in spring, or carry very little of it, is likely to be queenless.

### Avoyelles Parish Beekeepers' Association

On Saturday, December 7, a number of beekeepers met at Marksville Parish seat and organized a beekeepers' association under direction of Mr. E. C. Davis, Bee Extension Agent for Louisiana. J. F. Archdekin was elected President and Mr. L. C. Mayeux, Hamburg, La., Secretary-Treasurer. The purpose of the association is to sell honey and wax and buy supplies for the members.

J. F. ARCHDEKIN,
Big Bend, La.

## Organization for Disease Control in Texas

TEXAS is a big State in area. It is second only to California in the importance of its beekeeping industry. Accordingly we are not surprised to find the largest organization with centralized control, for dealing with bee diseases, of any State. The work of eradication of bee diseases is placed in charge of the State Entomologist. Since he is also charged with control of insect pests, he places the bee disease problems in the hands of a chief inspector who has no other duties to perform. Under this chief inspector is a force of forty local inspectors who are responsible for the field work.

The Texas law is very stringent, giving unlimited authority to the State Entomologist. Not only is he able to enforce all the provisions specifically set out in the statute, but he is also given authority to make such additional regulations as may be needed. On this point the law of Texas reads:

> "Shall have full authority to make, promulgate and enforce such rules, ordinances, orders and regulations, and to do and perform such acts as, in his judgment, may be necessary to control, eradicate or prevent the introduction, spread or dissemination of any and all contagious diseases of honeybees."

Transferring the bees is a big job in some sections. The inspectors are responsible for a great advance in Texas beekeeping.

The specific statutes relating to control of bee diseases are long, consisting of more than twenty sections of the law. Special provision is made to prohibit the shipping of any bees, equipment or honey into the State, without a certificate from duly constituted authority, to the effect that they are free from disease. Railroad companies are prohibited from receiving for shipment either bees, combs or used equipment from place to place within the State except under such regulations as shall be prescribed by the State Entomologist. The officials are given full authority to examine any bees in transit at any point within the State and to seize and confiscate them if found diseased. Further authority is given to establish quarantine against the shipment of bees or honey into or out of any district which may be designated. This is to prevent the introduction of disease into any territory that may be free from it, or to prevent its spread from localities where it is known to be present.

Officials in charge of Texas beekeeping, left to right, W. E. Jackson, chief inspector; S. W. Bilsing, instructor in beekeeping at the college; F. B. Paddock, State Entomologist.

The Entomologist has authority to make it unlawful to keep bees in other than movable-comb hives in any part of the State where he finds it necessary in the discharge of his duties. He may burn bees, hives and honey, if he sees fit, in order to eradicate the disease from any part of Texas.

In meeting any emergency, it is necessary to centralize authority and the Texas people have given the entomologist a great deal of latitude in dealing with bee diseases. Inspection laws have been passed for the benefit of beekeepers, and at their request. What beekeepers want is protection against the spread of disease, and this is the sole object of the law. The results obtained depend upon the manner of administration. Prof. F. B. Paddock, who is responsible for the administration of the Texas law, takes the view that it is useless to spend the State's money in fighting disease in localities where the beekeepers are not interested. He accordingly makes a requirement that the beekeepers be organized in every locality where inspection is undertaken. He regards the co-operation of the local association of prime importance in cleaning up disease. In the selection of a local inspector he requires that the county organization, in the county where the work is to be done, designate two or more men who will be satisfactory to the local beekeepers. After careful investigation he selects the man who seems best fitted for the work. Since the selection is made from a list of candidates endorsed by the association, there is no reason for complaint because of an unwelcome appointment.

In selecting an inspector several things must be borne in mind. In the first place it must be clear that the candidate is an expert beekeeper who is competent to deal with disease and to give advice on any phase of beekeeping when necessary. Not only this, but it is highly important that the inspector be in position to respond promptly at the proper time. A man may be an expert beekeeper and unsuited to the work because his own business is likely to require his attention at critical times. It often happens that general inspection will not be possible for weeks at a time because of unfavorable conditions, such as robbing for lack of honey in the field, or continued wet weather. Following such a period the man with large apiaries and insufficient help is likely to spend the most suitable days with his own bees.

Again, it is important that the inspector be a good judge of human nature and able to get results without stirring up antagonism on the part of men who need his help. The selection of such a large force of field men as Professor Paddock employs is in itself a very difficult task. The chief inspector goes from county to county, giving assistance and counsel wherever needed and supervising the field work. W. E. Jackson, the present chief inspector, has been called to the army, so that the work has been hampered seriously on this account.

When work is begun in a county the amount of work needed is estimated as nearly as possible in advance and the necessary expenditure authorized. It is thus possible to approximate the yearly expenditure very closely and to keep within the appropriation. The inspectors begin at the center of infection and gradually extend the circle to the limit of infection. They are expected to be very thorough in their work and to examine every comb in every apiary under suspicion. In queen-rearing apiaries, every colony is closely inspected, together with all bees within a mile, before the certificate is issued.

When the size of the State is considered, as well as the great development of beekeeping within its borders, it is difficult to realize the enormity of the undertaking to control bee disease within the borders of Texas. The writer spent nearly seven weeks visiting among the beekeepers of the State, yet was able to visit but a few of the counties. If the chief inspector should travel constantly, he would find it impossible to spend a day in each of the counties and return again the same year. Mr. Paddock and his assistants have a big job on their hands. Success to them.

## A New Winter Case

By Chas. Reynders

THE advantages of the winter cases hereunder described, consist in that:

1. They are individual for each colony.
2. Colonies always remain on their stand.
3. There are none of the complications inescapable with cases for more than one colony, as for instance, exact leveling of the ground about the entrances, etc.
4. They are collapsible, so that during the summer they can be laid away, filling up inside of the 5½-inch deep cover, one stacked upon the other.
5. They can be set up for use or dismounted in two or three minutes.
6. They are substantial, light and durable.
7. It takes no more time to make one of these cases than it does to nail up a double-walled hive, as same arrives from the maker, in the flat.
8. While economical, this winter case with a well-made, simple wall hive, is equal to anything that can be bought in the way of double-wall hives.

Fig. 1 is to illustrate a 10-frame dovetailed hive body (a), with chaff tray (b) thereon, and cover on top (c); (ddd) is the bottom-board; (e) entrance-block, and (mm) apertures in latter.

The dotted lines around Fig. 1 are to indicate the 4-panelled winter case. In that same figure (hh) and (ii), indicate cross-section horizontal strips (2x½ in.), holding together the boards whereof the panels are made. (For the latter I now use stuff from high-class shoe boxes ⅜ inch thick), viz.; (hh) strips inside, resting on and along outer edge of bottom-board, as shown by Fig. 4 (kk), and (ii) horizontal strips outside, 5½ inches from upper rim of case (on top of panels); whereupon the cover of the winter case rests. The first of these covers have galvanized sheets; those I now make will have 3-ply asbestos roofing instead, because of too high cost of former. I use the asbestos roofing for the reason of being white.

It should be observed that the vertical dotted lines of Fig. 1 go down lower than bottom, thus underlapping, thereby excluding winds. It must, of course, be understood that the bottom-board rests upon a hive-stand, thus allowing the panels, other than the front one, going down lower than the bottom-board.

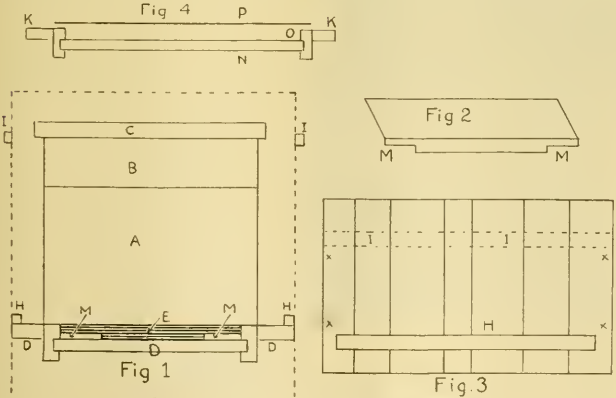
Fig. 2 shows entrance block, 14½x2⅝ and ⅞ thick—the apertures are at each end, are half the thickness and each 2½ inches long; (mm); see also Fig. 1. Five thin nails are driven through (mm) for the purpose of keeping out mice, etc.. (It is remarkable what little space they can squeeze through, but the grate made by the nails does keep them out).

Fig. 3 shows one panel; (ii) shows the upper horizontal strip in dotted lines; the lower horizontal strip (h) can be seen, the upper one (i), being outside, cannot.

The side and rear panels are like Fig. 3 (the former 24⅞, the latter 20 inches, both 20¼ inches vertically. The front panel has horizontal strips on a level with the others, but instead of underlapping, the lower one rests upon the entrance-block, Fig. 2.

Fig. 4 shows the bottom-board by cross-section; "n" is ⅜ inch and "o" is ⅞ inch. At the rear there is a block like Fig. 2, but solid. Removal of both blocks generally provides amply for ventilation in summer.

The four crosses in Fig. 3 indicate where strap hinges are secured, 8 in all, inside. Half of the hinges, diagonally, are as they are bought, and half modified by filing off the underhead of the pins, so that by either inserting or removing them the panels are put together or taken apart, the latter by pairs. When in spring the winter case is to be removed, it has just to be lifted up from the hive, then in the diagonally opposite corners the pins with the lower head as filed off, need only be driven upwards enough to disengage the four hinges and by the other four hinges (left intact as bought) the four pan-



Details of Reynder's packing case for winter.

els are left in two pairs, collapsed and placed into the cover.

The extreme dimension of the bottom-board is 24½x20, and of the dovetailed hive 20x16¼.

At a certain time I concluded to have uniformity in bottom-boards throughout and adopted this (original) Buckeye board. I use it also with the Lewis Champion Hives, and not having had enough double-walled hives, because of unexpected increase, I used the same bottom-boards with single-walled hives, both dovetailed and home-made. I have never seen any disadvantage from the overlap (in summer) of the bottom-board (at sides and in front) beyond the single-walled hive bodies; in fact, as likely as not, my most productive colonies have happened to be in single-walled hives so adjusted.

I have boards that in summer I use for shade and in winter for windbreaks. In very hot weather removal of both bottom-board blocks seems scarcely sufficient for ventilation required; I then supplement by setting lower (comb) super an inch or so back of top of hive-body, the gap thus provided always fills the bill for ventilation.

Directions for making the winter case:

When used with dovetail 10-frame hive and Buckeye bottom-board, use ⅜-inch stuff and strips for the panels 2x½ inch.

Side panels: Vertically 20¼ inches. Length 24⅞ inches. Outside (upper) side slats, 24⅞ inches and 5½ inches from top. Inside (lower) side slats, 23⅜ inches and 2¼ inches from bottom, ¾ inches off from margin. Hinge blocks (2x4), 2 inches from top and ¾ inches off from margin.

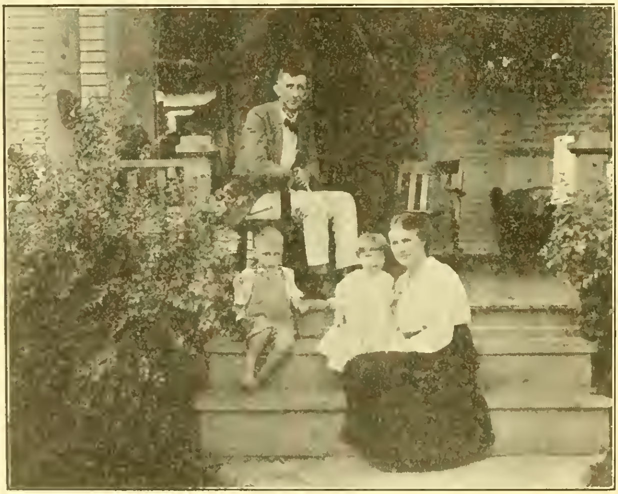
Back panel: Goes inside of side panels; vertically 20¼ inches, width 20 inches. Outside (upper) slat overlaps ¾ at end (2½ inches long). Inside (lower) slat, 20 inches (flush). Hinge blocks, flush and 2 inches from top.

Front panel: Goes inside of side panels, vertically 18 inches, width 26 inches; top rim of same goes even with the other panels. Slats and hinge blocks, same as for back panel.

Cover, out of ⅝ in. stuff, 5½ in. deep, will just be filled up by the panels collapsed. Galvanized sheet or white asbestos roofing.

Ulster, Pa.

# BEEKEEPERS BY THE WAY



Dr. J. H. Merrill, Mrs. Merrill and the "kiddies."

### Merrill, of Kansas

It requires a peculiar type of man to be a successful teacher of beekeeping. He must be, not only an expert beekeeper, familiar with all the intricate manipulations necessary to make honey production successful under varying conditions, but he must be an enthusiast who is capable of arousing and sustaining the interest of his students.

Dr. J. H. Merrill, of the Kansas Agricultural College, measures up to this standard very nicely. One does not look far in Kansas without seeing some effect of his influence. As State Apiarist he is responsible for the bee inspection in the State, in addition to the teaching and experimental work at the college. The work has not been long under way, but is being developed in co-operation with the State Beekeepers' Association, the Boys' and Girls' Clubs, and other organizations interested in bees, thus reaching the greatest possible numbers of people.

Our picture shows Doctor and Mrs. Merrill at home with their two children.

## Fifty Years Ago

Elisha Gallup in the American Bee Journal for January, 1869

As I have a great many enquiries in regard to wintering bees, I propose to give my answer through the Bee Journal.

M. Quinby recommends a barn cellar and he gives a description of his in his book. But we do not all have such cellars. Mr. Robert Jones describes a very cheap house to winter bees in. I think that 10 or 12 inches of sawdust would be better than six for our northern climate. Mr. Thomas, of Canada, gives us another cheap plan. Mr. Wedge, of Wisconsin, uses a house with double board walls and a foot space between each, filled with straw dust, with perfect satisfaction. Chas. Dadant gives us his method of burying bees, and with his method of ventilating the trench there is no doubt but it will work well. If you put one tube in the top, or two of the same length, it is no ventilation at all. But put one in and let it come up through the covering of the roof and extend down to within an inch or two of the bottom of the cave, then put in another, letting it go down just through the covering and extend 5 or 6 feet above the covering and you have the very best of ventilation, with a strong curent of air.

A strong, large swarm, with abundance of honey and properly ventilated, will winter well on its summer stand; but it is almost impossible to give written instructions to new beginners that will winter every swarm, without as much trouble as it will cost to fix some of the repositories above mentioned. Our winters are so variable that the method that will work well in one winter would not answer the next, on the summer stand. With an especial repository, we have the winter under our control, and wintering reduced to an absolute certainty, with proper ventilation. A large number of swarms create a large amount of animal heat, and a small number create heat in proportion. So in ventilating we must take this into consideration and govern ourselves accordingly.

About wire gauze. If you fasten your bees in with fine gauze and one bee takes a notion that she wants to go out, she commences butting her head against the wire, and very soon communicates her agitation to others of the swarm, and they lose some of their number every time. Now, instead of the gauze, ventilate each hive just right, and you will not lose a dozen bees per swarm in the whole winter. If you are troubled or are afraid of rats or mice, use coarse wire that a bee can pass through easily, and still keep out the mice. I winter in the cellar, and yet ventilate each swarm so that I can go all around with a light and not a bee stirs or attempts to come out. If a large swarm is not peaceable, give more ventilation. If from a small swarm some of the bees come out and discharge every time you go into the cellar, the inference is that there is too much ventilation.

Osage, Iowa.

## Beginning in Extracted Honey Production

By Oscar Ritland

IF we are going to make the production of "Extracted Honey" our life work it is of the greatest importance to start right. For if we do not start right we cannot expect to succeed later on.

In this paper I will give some of the things which I think are important to anyone who is going to start in the production of "Extracted Honey."

First, I would provide myself with several of the leading textbooks on beekeeping and study them over and over again, and I would also subscribe for one or two of the bee journals. These ought to be preserved for future reference. I have every issue of the bee journals since I began taking them, and I refer to them constantly. New problems are continually coming up and in the back issues of the journals I can find a solution to most of them.

During the winter there is very little to do with the bees. Then is the time to make everything ready for the coming year. If any hives are to be made or bought, winter is the time to attend to that. Frames should be filled with foundation and everything gotten in readiness, for when summer comes we are usually busy, and what a satisfaction it is to have everything ready.

Finally spring draws nearer and we long for the time when we can work with the bees on the summer stands. If they are quiet in the cellar I think there need be no hurry about removing them. I would suggest about April 1 to 10 for central Wisconsin, depending upon the season. I like to have my bees out a few days before soft maples bloom. The queens usually begin laying about the time of removal from the cellar and there will be some brood when the first pollen comes.

From now on we want to do everything in our power to make the colonies prosper, so as to have them strong early. Every colony should be examined shortly after being placed on the summer stands. If any are found to be queenless the simplest way to dispose of them is to unite them with weaker colonies, having a queen. Any colonies found short of stores may be fed by giving a comb of honey saved from the previous fall for this purpose.

If the apiary is in a well protected location and the hives are well made, so there are no gaps at the corners, and the covers fit snugly, I doubt if it would pay to cover the hives with paper. But if it is in a windy place, or the hives are gaping at the corners, I think I would paper every time.

I do not fear a cold spell coming shortly after the bees are removed from the cellar as then there is only little brood in proportion to the mature bees. But after two or three weeks of nice weather the brood will have increased considerably while the mature bees will have decreased; then should a cold spell come, some of the brood is liable to chill. This is when the paper pays, and pays big, for we do not want the bees to have any setback at this time. If we cannot get them strong and overflowing with bees before the clover flow is well advanced we will lose part of the surplus.

All queens' wings are clipped before the colonies become too populous, and as I keep a record of every colony, I make a note of it in the book. I also keep a record of the number of frames of brood each colony has at each examination, which enables me to tell which colonies can spare brood in case I want to help a weak colony. I find there is quite a difference in the strength of the various colonies in the spring. Some have only three frames of brood, while others have seven or eight frames. In order that all colonies may be ready for the same treatment, at the same time, I draw nearly mature brood from the stronger and give to the weaker ones until all are prosperous.

As soon as a colony becomes strong enough so that it fills one story with bees, brood, pollen and honey, a second story should be given without excluder. If there is any doubt as to whether a colony actually needs another story, I would put it below the original brood chamber, for there it can do no harm, and as the bees need room they move down.

Royal palms near "Cubanacan," Indian name of the place where is located now the city of Santa Clara, Cuba. "Cubanacan" means heart or center of Cuba, and the Indians were right, as our city is in the middle of the island. Urbans Trista.

Any combs containing drone comb should be placed by themselves and used only over an excluder as storage room, in order that the bees need not waste time and energy in raising drones.

I prevent swarming by the well-known plan of placing the brood above the excluder and letting the queen fill the lower chamber anew. I leave one comb, containing the least brood, below, and the queen keeps right on laying.

It is rarely necessary to place the brood above again. After the brood has been above the excluder for ten days it will all be sealed and will be fine for making increase. Here is something I have learned about making increase. It pays to make only a moderate amount and to make it early and strong. I think there should be a laying queen in every new colony from July 10 on, unless the colony is made proportionately stronger. For if a colony does not become strong by fall it will be weak in the spring and will not be ready for the clover harvest. Far better, then, to make only a moderate increase and make it strong.

If we have everything ready in the line of extra hive bodies, etc., we can simply add extra stories as the bees need room. I want enough hive bodies ready at the beginning of the season to hold the largest possible crop, for I don't extract until the whole crop is ready.

When we extract we must have everything arranged conveniently and the most uptodate tools to work with. There is a great deal of satisfaction in having everything go smoothly. I have used the steam uncapping knife two seasons and am well pleased with it. The secret of success seems to be to have plenty of steam so that the jet does not die down every time one gets into a comb.

I have also used the new friction drive power extractor two seasons with great satisfaction. It certainly sends the honey out of the combs. All of my combs are wired, so they can whirl at great speed without injury. A small gasoline engine furnishes the power. The same engine runs the saw in the winter and the cream separator and churn between times.

This past season I built a honey-house and workshop. It is 16x26, two stories high, with bee cellar under it. The upper story is used for storing supplies and the first floor for extracting honey, making hives, etc.

As the years go by, the stock of extracting combs grows larger and the crops of honey will be larger as a result, and swarming will be more easily controlled. The extracting combs are valuable and should be cared for.

We ought also to try to improve our bees each year by requeening with queens of better stock. If our own bees do not satisfy us, we can send away for better queens. I have had bees all the way from blacks to the yellowest Italians, and am satisfied that the Italians are the bees for me. The only thing in which the blacks excel is in making more beautiful cappings to the honey, but that matters little to us who produce extracted honey

Let all who produce extracted honey make it their aim to have all colonies strong and overflowing with bees at the beginning of the clover harvest and the years of total failure will be fewer.

Elroy, Wis.

## Carpet Grass

By C. D. Stuart

An excellent pasturage for both live stock and honeybees is the carpet grass of our California river bottoms. Luther Burbank describes this plant as *Lippia Repens* to distinguish it from *Lippia Canescens* of European botanists. It is indigenous to Chili, and became first established in California as a lawn grass.

Out of some ten thousand plants grown, Burbank propagated two that he named Dixie and Mojave. Dixie makes a deep green lawn of good texture, and requires but one-tenth the moisture it takes to keep a bluegrass lawn healthy. Mojave grows a lighter green, but is valuable along canals and other water courses, since it throws out long roots that hold the banks from washing. Both varieties spread by rooting, like strawberry vines, and once introduced to a favorable locality, they quickly overrun the other grasses.

Lippia Repens, lawn plant in California much sought after by the bees.

A sycamore fell during a storm and broke the trestle on which the apiary is kept above the river floods. Photograph by Winfield Gear.

Lippia is a distinct relative of fragrant verbena, but different in physical habit. It is not hardy, and one objection as a lawn grass is that it turns muddy-brown as soon as frost strikes it. This unpleasant hue it retains all winter, and does not recover a lively green again until about the first of June. But where it roots on overflowed lands, it starts growth as soon as any of the other grasses, because, until the soil is drained of surplus water, no plant can thrive.

Lippia bears a small white flower, its nectar-sack easily penetrated by honeybees. The flow of nectar is abundant and steady, a yield of two cases to the colony not being extraordinary. The honey is light amber, heavy bodied, and about of the same quality as alfalfa, which it is usually taken for. It candies in about the same time after extracting that alfalfa honey candies. Two bottlers to whom I introduced it last year said they preferred the flavor of lippia to alfalfa, but they could not be induced to pay more for it.

The lippia flower attracts bees from far and near. In Chico, many lawns have been dug up because children playing on them in hot weather were invariably stung on their bare feet. The herbage is likewise attractive to live stock, whose bare feet are not so easily tickled by bee stings. Its fine leaves keep green and growing, independent of rainfall, and constant cropping serves to prune the runners and make the plants stool; while tramping makes them a solid mat. Burbank found that to run a wagon over the pasturage caused the plants not only to thicken, but to spread more rapidly than any other grass subject to a similar pressure. The accompanying photograph gives an excellent idea of the trailing habit of this grass, and of its blossoming.

In order to take advantage of carpet-grass pastures for honey producing, hives must be placed on trestles. The apiary from which the accompanying photograph was taken belongs to Winfield Gear, on the Sacramento river. The trestle is about 7 feet high, and in years of extreme inundation, water reaches within two feet of its floor. The floor accommodates about one hundred colonies, although at the time of taking the photograph there were less than fifty. These trestles are not expensive, and, when well built, last a lifetime — barring sycamore trees. Bees, when wintered on such elevations, are saved from mice, toads, skunks, and all like pests that disturb an apiarist's slumbers on stormy nights.

The photograph also shows some of the adverse conditions a river-bottom apiarist must expect to contend against. A neighboring sycamore tree nearly one hundred feet high fell during a storm last winter Mr. Gear was more interested, however, in the condition of the hive shown upside down than in the destruction of his handiwork. In this reversed hive the bees had started brood rearing weeks ahead of the other colonies, due probably to the breaking of combs and the spilling of their stores. The colony appeared but little incommoded by the topsy-turvy condition of their domicile.

Los Gatos, Calif.

## Increase With Pound Packages

By John Vanden Berg

After a number of years of beekeeping, the fall of 1914 found me with only five colonies of bees.

During the winter we nailed up a quantity of supplies, including 1,200 standard Langstroth frames, fitted with full sheets of light brood foundation, which was fastened in place with Dr. Miller splints. Wishing to make a good job we used eight splints that were boiled in beeswax to each frame.

Being anxious to increase the number of colonies as rapidly as possible, I bought up colonies of healthy bees wherever I could locate them, some being shipped in from another

State. Early in May I noticed the adult bees from one of the five colonies we wintered acting in a strange manner. From the symptoms I concluded it was a case of paralysis. They were treated in several ways without success; all other colonies were healthy.

We were now eagerly waiting for the pound packages of bees with queens which had been contracted for, and yet being short of empty combs and frames of honey, we were glad that they did not arrive, for at the time the weather was unfavorable, raining most every day. When they did come it was still raining. Taking them into the kitchen, I applied heavy syrup to the sides of the cages. After the bees had all the feed they could take they were put in a warm place until the next day, when we hoped for clear weather. I made ready ten hives at home, where the five colonies were, one of them having paralysis, there being at this time a large number of dead bees on the ground in front of the entrance of the affected colony. I opened this colony, found and killed the queen, then placed one frame of brood and bees from this colony in each of the prepared hives. A comb having little or no brood was given an extra supply of bees. A frame of foundation was placed each side of these combs. The cases were then opened and the bees shaken onto the bottom board and gently urged onto the comb of brood. When most of them had gone there the cage was placed on the bottom board to allow the remaining bees in it to join those on the comb. In one instance the greater part of the bees returned to the package. Later, before moving these hives to an outyard, they were given another frame of brood.

As the season advanced I failed to note any evil results due to giving these packages of bees combs of brood and bees from the colony having paralysis. Very likely a good warm feed and the introduction of a number of healthy young bees and a new queen would have helped matters in the diseased colony. Since there has not been any of this disease present lately, have not had the opportunity to try out the plan.

Other packages of bees were taken to the outyards as soon as received. They were given frames of brood, but no bees, since by now I was keeping the strong colonies busy drawing out foundation into combs for increase. Our main flow comes after August 15. We have no flow from clover here. After fruit bloom and locust blossoms are gone there usually is a little honey coming in from tulip trees during June. What honey we get at this time is very dark, but there is a good local demand for it. If this so-called "Black Strap Bug Juice" could be produced by the ton, New Jersey would become famous in the beekeeping world, I'm sure. At least I would be content to remain where at present located.

After tulip bloom there is a period of several days during which there is no surplus honey coming in. Early in July we sometimes enjoy a heavy flow from sumac, which usually lasts long enough to fill the brood chamber and complete the unfinished sections in the super. I now know it is a mistake to try to produce section honey here.

During this time we started some 3-frame nuclei, purchasing queens to head them. When sumac had gone there was no nectar coming in and none was expected until about August 15. In buying our supply of queens we purchased half dozen and dozen lots from different sources in order to try out many advertised strains. They certainly were full of energy. These bees did not waste time gluing up the hive fixtures, for, owing to a former experience, the bees were on staple-spaced frames; but, judging from the way they treated the frames of foundation and partly drawn combs they must have worked day and night trying to tear out the wooden splints; as a result, all the foundation and partly drawn combs that were in the hives were reduced to ribbons. I then gave the bees wired frames of foundation. I found that excellent combs could be gotten by placing these frames of foundation supported by splints into the brood chamber of strong colonies, one or two at a time, when the bees were gathering honey. When promptly drawn out, these combs are attached to the frames at all points, excepting perhaps a small space in the lower corners. The combs are practically perfect, brood being reared up close to the top bar, due to the absence of any sag in the foundation. If I were located where there was a good spring or summer flow I would try them again, but not as many as 1,200.

The 15th of August arrived, and I had bees in 80 hives, and soon after I realized that I would not have that many colonies, worthy the name, ready for the fall flow. I promptly killed a number of undesirable queens and when the work of uniting had been finished I had 60 colonies. They all gathered sufficient stores for winter, a few gave 25 to 30 pounds of extracted honey from aster. We prepared them for winter by wrapping in tar paper. The entrances were contracted down to ¼x6 inches.

Wanawah, N. J.

---

## Care of Virgin Queens

By C. C. Miller

A CORRESPONDENT writes: "Could you not give some advice in the American Bee Journal as to how virgins should be handled from the hatching-cage to egg-laying? This period is the sticker. Everybody tells how to rear them, which is easy; but to get them accepted, mated and laying is, indeed, another game."

There is probably no one, however experienced, who can count each year on having successful layers out of 100 per cent of the young queens which emerge from their cells, and nothing can be said here in the way of teaching that would warrant any such expectation.

If a sealed cell be given to a nucleus which is queenless, and fully conscious of its queenlessness, which is as much as to say that it has been queenless 24 hours or more, there should be little doubt as to kindly acceptance. But if a virgin be given from a hatching-cage, as our correspondent mentions, the case may be different. If a virgin be taken just as soon as she emerges from her cell, supposing that she has not been imprisoned by the bees some time after she is ready to emerge, nothing is more sure of acceptance. But if she be left in the cage until a week old, her chances of life are slim, no matter where introduced. While very young, supposing she is mature enough to emerge from the cell without being picked out, the bees seem indifferent to her, not considering her in the light of a queen, but as an innocent young thing that is utterly harmless, and she will be tolerated even in a colony having a good laying queen with which the bees are perfectly satisfied. But when she becomes old enough, and begins to put on airs as one of royal blood, then she is considered in quite a different light. If it be in a colony with a laying queen, even though she has been kindly treated in her babyhood, just as soon as she begins to put on

C. B. Palmer's apiary in summer. Sweet clover helped make a big yield.

airs as a young lady of royal birth, there seems to be fear for the safety of the reigning sovereign, and the intruder is assassinated.

In a queenless nucleus, one would think that a virgin of any age would be kindly received, yet if she be past a certain age the bees seem to think there is something not satisfactory about her, and she is very likely to be voted out. So if a virgin be given from a cage or a nursery, care should be taken that she be not over the age prescribed in the laws of the bee commonwealth. Just what that age is, perhaps no one knows yet, but it may be well to advise that to be on the safe side a virgin should not be left in a nursery until she is more than 24 hours old. Of course, it is convenient in many cases to leave her unused until a week old or more, but one runs risks in so doing.

The age of the bees in a nucleus is a matter of importance. In general it is the older bees that are grouchy about accepting a queen, whether the queen be laying or virgin. So it is better to have a force of **young** bees in a nucleus. This matter will be likely to take care of itself when a nucleus is first formed, for the older bees are likely to return to their old place. An extra allowance of bees should be given to make sure the nucleus will not be too depleted by the return of these older bees. If the nucleus is to be used for the fertilization of more than one young queen, keeping it stocked with sealed brood will provide for a continuous supply of young bees.

Perhaps the most ticklish time for the young queen is when she makes her nuptial flight. What with birds and insect enemies, many a virgin makes her flight, never to return. Worst of all is bad weather, with its usually attendant lack of nectar in the fields. One may atone to some extent for the lack of incoming nectar by daily feeding, although it is doubtful if any feeding can entirely take the place of a natural flow. But against the baneful effect of bad weather there is no remedy. The most experienced veteran is just as helpless against it as the novice. All that can be done is to grin and bear it, hoping for better luck next time.

The man who rears queens merely for his own use will time it so as to rear them mostly, or entirely, during a good flow, when weather is likely to be favorable, rearing a superfluity of virgins, so that if a goodly portion be lost he will still have enough successes to meet all his needs.

(Dr. Miller refers the above to the editor with the request to add to it if advisable, as he feels "none too competent." It may be as well to say that this matter of virgin introduction has always proven a difficult matter for us, and we much prefer the introduction of ripe queen-cells. We will be glad to hear from men who have been regularly successful in the introduction of hundreds of virgin queens. They are certainly not very numerous.—Editor.)

---

## What Do You Consider the Most Equitable Arrangement for Working Bees on Shares?

By L. B. Lundie

I HAVE had a little experience with working bees on shares. Some years ago, in addition to my own work, I managed an apiary of about 60 hives for the honey and wax. The owner was a thorough gentleman. He never interfered with me at all for the whole season and was quite prepared to take my word for what honey and wax was gathered for the whole season. However, I only managed the bees for that one season, as I did not consider it paid.

I also had another experience three years ago in working bees on shares for half the honey and wax. An old employee of mine was leaving for the front and was much concerned about the seven hives he was leaving behind. In a weak moment, or in a burst of patriotism, I told him not to worry about his bees, as I would do my best to look after them during his absence. One season, though, was quite enough for me looking after those seven hives. They all wanted to swarm, and the little apiary was easily doubled, making 14 hives in all. I apologized to the boys' parents and regretted that I was unable to look after them further. The coming season is the fourth since he went away, and, with proper management, there should have been upwards of 50 hives to have started the season with.

Honey house and apiary of C. B. Palmer, at Bradshaw, Neb. Nebraska is to have a meeting of beekeepers in January.

In each case, Mr. Editor, I was dissatisfied to continue, as I considered half the honey and wax was not sufficient. Of course, in letting bees out on shares much would depend on the apiarist. To an incompetent man or a stranger, or one who has had little experience, a half share might be ample, and, perhaps, if he should neglect his work in any way, too liberal payment. But I am of the opinion if a man is found to be thoroughly honest and also has a thorough knowledge of his work, and, withal, is not afraid to work, he should be entitled to more than half the honey and wax. Especially if there is no need for the owner to visit the apiary from one year's end to the other.

I fail to see why bee farmers should be treated differently and get a smaller share than wheat farming on the share system. Before the war there was much of this done in this locality. The worker doing all the labor, such as plowing, harrowing, etc., and finding two-thirds of the seed and manure, and receiving for his reward two-thirds of the crop. The owner of the land contributing one-third of the seed and manure, and being quite content with a third of the harvest. Many may probably say that the conditions are so totally different. In some respects I agree with them. But in working bees on the share system the owner should not close his eyes to two outstanding features. (1) Nature, providing you are near a State forest, gives you the nectar free, gratis and for nothing; and (2) as I have previously mentioned, so much depends on the personal touch and the honesty of the beekeeper.

Before closing, another point is really worth mentioning. At the present time the majority of us, to a greater or less degree, are thinking of investing in the seventh War Loan, and will receive 5 per cent for money invested. I estimate the value of 100 hives with plant and accessories at say £200. If the country is any good at all, it should average, year in and year out, at least two tins to the hive, and with the ruling high price of honey, after paying for tins and cost of range area the net proceeds of the apiary should amount to £200 (on an average) every year. The owner receiving one-third share should get £66 13s 6d, and the beekeeper, doing all the labor, gets the balance, £133 6s 8d. Allowing 10 per cent off for depreciation, say £20, leaving £46 13s 4d net profit, which is over 20 per cent on the capital invested. Providing the right man is looking after the bees, a gilt-edged security, is it not?

I might add, unless otherwise arranged, the swarms and increase should be retained by the owner.

From Australasian Beekeeper.

## Montana Sweet Clover and Cherries

If you are coming to the Glacier National Park next summer, be sure to come in July, when those big black, sweet cherries are ripe. This is not a good picture, for it does not show the trunk. We are 31 miles from the Glacier National Park.

With the yellow sweet clover they are planting, this will soon be a fine honey country and the honey is fine. I use a large hive. I want lots of room in the lower story. We never take any honey from the lower story, but I have many times taken off as much as 200 pounds of honey.

J. D. KAUFMAN, Kalispell, Mont.
Cloverdale Stock Farm.

Mr. J. D. Kaufman, Kalispell, Montana, eating sweet cherries in the tree. He lives less than 60 miles from the north line of the United States.

## An Unusual Season

### By G. C. Greiner

THE past season has been, in many respects, an unusual one. Almost every season presents some extremes in one direction or another, but it does not often happen that so many extremes follow one another the same season; it can be justly termed "a season of extremes."

When spring opened many beekeepers found themselves destitute of their bees. According to different localities, severe climatic conditions, the ravages of disease, etc., their losses ran anywhere from 10 to 80 and 90 per cent. A few reported hardly any winter losses, while others had lost nearly or quite all they had. The writer was one of the latter class, having been visited by American foulbrood in its most destructive form. To make up the deficiency by buying from neighboring bee-owners was out of the question. Only in exceptional cases could bees be bought, and then only in limited number, as an accommodation. All felt eager to keep what bees they had and comply with Mr. Wilson's war-time recommendations to produce as much foodstuff as possible for the boys "over there." Even the combless package establishments could not better the situation to any great extent; they all reported being overrun with orders, more than they could fill for a long time to come.

Then the season's honeyflows presented some peculiar features. The first sources of nectar, among which the dandelion played an important part, was exceptionally helpful to the building up of our bees. I have never known a season in which medium and even weak swarms made such rapid progress. Although the white clover yielded abundantly, on account of unfavorable atmospheric conditions, the first half of the flow was entirely lost to the comb-honey producing colonies; they did not enter their sections until the best part of the flow had passed. Fortunately, the main part of our bees were run for extracted honey, which enabled them to store surplus at open spells, when the comb-honey colonies could not build comb or even draw out foundation.

In spite of the discouraging beginning, the season turned out to be one of the best in many years, the most bountiful surplus crop was secured. From the time the first honey from early fruit trees was gathered, honey never ceased to be coming in until bees were confined to their hives by cold weather in October. During all my extracting early and late honey, I could leave the doors of my honey-house wide open and not a bee offered to molest me. Favored by this unusual honey-flow, I have taken approximately 280 pounds of surplus honey per colony, spring count; of this about one-third was comb honey.

Then came another extreme in the shape of unheard-of prices for our product. For many years I have sold the very finest of water-white clover honey for 40 cents per quart and a little later for 45 cents. Then came the beginning of war prices, a year ago last summer, with 65 cents per quart. This caused some of our close figuring customers to drop honey from their daily diet and it seemed at that time as though this higher price would have a detrimental effect on the sales of honey. But this was only temporary; it could not reasonably be expected that the price of honey would remain on a level with pre-war prices, when all other commodities had taken a steady upward course, reaching, in many instances, double and treble their former prices.

But the war continued, and to supply the hundreds of thousands of our boys at the front, as well as needy foreign nations with food, a general saving of all provisions was ordered by the President. The sale of sugar was especially restricted, so that the people were compelled to fall back on honey as a substitute for sweetening. This gave the price of honey another advance in all markets; the last year's 65 cents was raised to $1.00 a quart, with smaller packages still higher in proportion. Although beekeepers, as a class, are generally law-abiding citizens and regretted these deplorable war-time conditions, yet, unintentionally they were benefited by the increase expenses imposed upon others. In many instances they more than made up their previous winter losses by these high prices of honey.

The last extreme which I wish to mention in this article is the product in honey and increase of my best yielder. Ordinarily my average yield mentioned above would pass as an extreme, but this colony has more than doubled it. To make everything as plain as possible, I can do no better than give a condensed outline of the main features connected with this case.

When I purchased this colony, early this spring, they were, in regard to brood and bees hardly above medium strength, but their brood was, to all appearances, perfectly healthy, which under the prevailing circumstances, I prized higher than a hive crowded with bees. It was somewhat of a disappointment to me that they had all indications of being genuine hybrids, which they proved later by their stinging inclination.

As the season advanced and new honey made its appearance they built up at an astonishing rate, so that by May 10 their hive was crowded with brood and bees. According to my practiced rules and regulations, I divided them on that day by leaving the queen with two combs of brood and all adhering bees in the old stand and moving the remainder, after introducing a young southern-bred queen to a new one some distance away.

Making this division seemed to inspire the old queen with new energy in building up her reduced home, and by June 2 the hive was again full of brood and bees. Being anxious to make all the increase consistently, not cutting off the honey crop entirely, I divided them a second time exactly as the first time, except that

One stock of yellow sweet clover grown in northern Montana. Note the woman behind it. In America the prudent farmer has and will leave to posterity, a fertile farm.—J. D. Kaufman.

this second division was run for extracted, while the first was used for comb honey.

On July 12 something unexpected and unusual happened. The first division, after they had finished two supers of twenty-four 1-pound sections each and were nicely at work in their third, cast a medium-sized normal swarm. I generally return such to their old home or hive them on the old stand, but being still anxious for increase, I hived them separately on six empty combs, and a few days later gave them an extracting super reduced like the hive by chaff division-boards to five combs.

Now for the result. I did not actually weigh the honey from any of these swarms separately, but I have time and again weighed supers before and after extracting. I can, therefore, vouch for the approximate corectness of my estimates. From the original queen, hybrid as she was, I have extracted approximately 225 pounds; the first division has given me 120 sections, the second division 210 pounds, and the young swarm 55 pounds, making a total of 610 pounds from one colony, spring count. This breaks all records of my beekeeping life.

The secret of my heavy yields, expressed in a nutshell, is simply this: Brood-chambers should never be disturbed during a honey flow. I never open a hive from the time spring management is completed until the following spring unless it is strictly necessary.

La Salle, N. Y.

## The Tools of a Worker Bee

By D. M. Macdonald

It was my pleasure and privilege lately to visit a pneumatic tool factory, large engineering works, and also a part of a ship-building yard. The tools being manufactured and the tools being used were marvels of perfection and admirably fitted as means to an end. Yet both in finish and application they were left far behind by the exquisite tools possessed by the worker bee, as seen with the aid of the microscope; and I should like, if I could induce our budding beekeepers to give of their spare time to study the marvelous pieces of perfection included in a bee's outfit.

**Pollen Baskets.** These are models, and every part is exactly suited for the purpose for which it was created. First, we have a hollow space near the joint of the posterior leg, and facing this are a great number of bristly hairs to save the cargo from falling out of the baskets. On her fore legs are brushes with which she dusts the feathery hairs on her abdomen, pressing the pollen grains with which they are coated, backwards into the baskets, where the mass is pressed down in a solid load. The in-curved hairs keep this in position while she is winging her way to the hive. Her burden is unloaded with the assistance of her other legs and the pollen deposited in the cells ready to supply beebread for the nurse bees to feed the larvæ. Every tool aids the good work, for it takes several to load up and several to unload the comparatively huge burden

**Antennae.** These feelers are organs of touch and bear 12,000 tactile hairs. They are also supposed to be organs of smell, and in the case of the drone, contains 37,800 smell hollows. (This has recently been disputed.) Besides, many claim that they are the seat of some unknown sense or senses, whereby the worker bees fathom and measure the darkness of the hive interior. As organs of touch note how the guards employ them to spy strangers. With bees of the same hive they are used to caress and fondle. Touching the queen they display affection and adoration. In her absence they employ them to discover what is wrong, and by a mutual contact of the antennae they discuss how to right the wrong by providing a new mother.

In the process of comb building what an infinity of shapes the antennae assume, and to what a multitude of uses they are put. They are the true architect's and builder's main stay. They are the tape, ruler, plumb-line, compass, square and cube, all rolled into one, which jointly and severally enable the workers to construct that wonder of perfection, the hexagonal cell. Here is a marvel: deprived of the antennae the worker ceases to take any delight in labor of any kind.

Such a delicate and important tool requires to be kept clean and fresh, and here, fitted for the occasion, we find a specially provided appliance suited for the purpose:

**The Curry-comb.** The bees' anterior lower legs are found to perform duties so analogous to what are carried out by our hands that they are called palmae. They "wash" the bee's face, but their chief use is to clean up the antennae. An open space between two joints of this leg just permits these being drawn through, with a slight pressure applied by the sinews, and the curry-comb, consisting of a number of hairs, cleans and polishes this important organ. The process can be often observed and the action of the pecten is very interesting.

**The Feet** of the bee are fitted with two tools well worthy of study; the claws and the pulvillus, pad or cushion. The claws aid the bees in walking over a rough and uneven surface. By digging these into the hollows of depressions, they are enabled to make progress with comfort and freedom. When, however, the surface is smooth as glass the pad comes into play, the claws are pushed back and the cushion exposed, thus preventing the insect from slipping, as one would do on smooth ice, because the pulvillus is provided with a kind of gum which this apparatus can exude at the will of the insect. When walking on the inner ceiling or similar parts of the hive this appliance enables the bee to walk upside down with equal facility as she walks or runs in her ordinary position. The claws act as a set of hooks when bees are clustering, while out as a swarm. Those below hook onto those above. The same ingenious contrivance permits the bees to hang in festoons when comb building, and thereby provide the workers with a set of ladders, bridges and roadways along which they move with dexterity and facility.

**The Tongue.** The honeybee is provided with a wonderfully complete tongue, made up of many parts, but it is difficult to explain briefly how all the tools are made to work together at the will of the worker bee when collecting nectar. Let it suffice at present that she can, by manipulating these parts, gather either the tiniest sip or a copious flow at will. The muscles force this liquid into the honey sac, where it undergoes a purifying process before being regurgitated into the cells. By a powerful set of muscles it is forced out of the sac, but in the act it is strained. The strainer consists of a set of hairs pointing backward and inter-crossing, which hinder the pollen grains from finding their way out into the honey-cells. There are quite a number of tools employed in providing us with pure honey. Amongst others not yet named is a gland in the mouth which aids in making nursing food for the young bees, and royal jelly for the young queens.

Bees are provided with a species of laboratory wherein they convert the liquid honey, which they pass into a "tank," and out of this they manufacture those sheets of wax which we find at times in the wax pockets. Parts of their feet, their claws, as well as their mandibles, are used as tools for passing on these sheets to the mouth, for masticating and making them pliable and malleable for biting them into shape, and for building them into the waxen cells. They are also used for capping brood and honey-cells, and the mandibles are used by workers, drones and queens in biting their way out of their natal cradles.

**The Sting** of the bee is a tool frequently felt as well as seen. It is her sword or bayonet, her scimiter, a lance, her weapon of offense and defense, wherewith she gallantly defends her hearth and home, frequently to the sacrifice of her own life.

Bees have frequently to force their way into the corolla of a flower when hunting for both pollen and nectar. In the same way their multifarious duties in the hive demand that they enter the confined space of a worker-cell. Therefore they are fitted with four small wings, capable of being folded into small dimensions. To increase their powers of flight they are provided with a set of hooks whereby they can fix each pair of wings into one large one, thus greatly magnifying not only their powers of flight but adding to their carrying abilities.

Seen through the microscope, these various tools are wonders of perfection, and I earnestly advise all beekeepers to make a careful study of their mechanism and functions.

Banff, Scotland.

## Painting the Queens to Recognize Them

So many have asked me questions concerning my way of marking the queens that I will give you my method of proceeding.

The coloring may be prepared of several tints, but yellow is the most useful, as it is more readily seen and helps in finding the queen. I buy in a paint shop a few cents' worth of chrome yellow. I soak it with a little alcohol to make a thick paste, which I then dilute with sulphuric ether until it becomes liquid. It is then ready to be employed, but must be kept meanwhile in a well closed vial.

To hold the queen during the operation I use a ring made of pasteboard with a few threads run back and forth through it in all directions about an eighth of an inch apart, like a net. Some apiarists prefer to hold the queen by the thorax or drop the paint on her while she is freely walking about. But there is more or less danger of spotting her on the wrong place, on the head or the wings. I prefer the net.

I place the net over the queen on a piece of comb and press down lightly so as to hold her down, then with a simple blade of grass I drop a small particle of color on her back. She must not be allowed to stir under the net as the color might spread. I prefer to release her at once. In a few seconds the color is dry and the queen remains marked for her entire life. It is important that the paint be of the right consistency, neither too thin nor too thick. In the first case it might spread and soil her. In the second it would not remain fast to the thorax. A beginner might experiment first on a few worker-bees, so as to become acquainted with the method and the necessary dose.

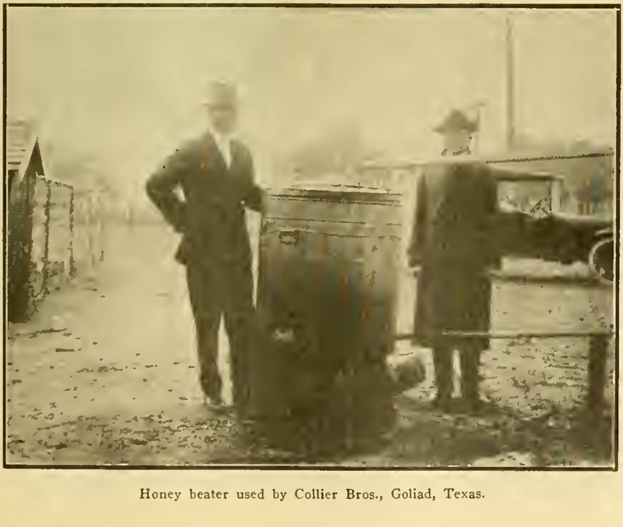
I usually mark my queens in this way before they are mated, as it is the most favorable time, and I introduce them at once into mating nuclei. But if I were to deal with fertile queens in full colonies, I would cage them for a half day, as the odor of ether might cause the bees to ball them.

FERN. STOCKLI, Switzerland.
(Bulletin D'Apiculture).

(On page 200 of our June, 1914, Journal, Dr. Brunnich gave his method, which is very similar to the above. Dr. Brunnich uses lacquer, with white, red, yellow or green, changing the color each year, so that he knows at sight how old a queen is. Every 4 years the same color comes again. He also makes one, two or three points, or a longitudinal bar, on the corslet, as recognition marks. He says it is very important to be able to know, at a glance, the age of a queen. We can testify to the fact that such markings make the queens exceedingly conspicuous, when hunting for them.—Editor.)

## Heating Honey as it Comes From the Extractor

The Collier Brothers, at Goliad, Texas, have an ingenious plan for heating their honey as it comes from the extractor. The picture gives a good idea of the heater, which is outside the building. A honey tank is set on top of a small furnace used for the firepot. Two pipes can be seen between the tank and the honey house. The honey runs from the honey house into the tank through the upper pipe and is returned to the building from the lower one. It is then strained while warm. In the October, 1917, issue of this journal is an account of the method of preparing honey for market practiced by N. E. France, of Wisconsin. Mr. France also heats his honey soon after extracting, finding that there is less trouble from granulation where the honey is heated at once.



Honey beater used by Collier Bros., Goliad, Texas.

## The Sense of Direction

Most of our readers are aware of the attribution of a sixth sense to the honeybee—the sense of direction—by some scientists. On this subject we find the following in the "Bulletin Suisse," which they have borrowed from the "Echo des Alpes." It was written by Professor Emile Jung, of the Universite de Geneve.

"In order to inform myself upon the discussion, I renewed, a few years ago, upon our common honeybee, the experiments of Fabre. I placed a few in a paper bag, after having marked them so as to recognize them; then I carried them to several distances from their hive. I liberated them at one kilometer (.62 mile). They came back home regularly. At 3 kilometers a small number remained away, and as the distance was increased the number of the lost increased. Beyond 12 kilometers, none returned. It is evident that the "topographic sense" of bees is suited only to small distances; it therefore loses its mysterious character, and I explain it in a different way from Fabre's view.

"While they are working in the fields it is certain that bees make observations, as we do ourselves in our rambles. They note here a tree, there a stream, in another spot some peculiar grass; they thus become acquainted with the country they inhabit, the immediate environs of their home first, and later more distant spots. The older ones, having traveled much, have doubtless in their memory a number of guiding marks which enable them to always know just where they are and the shortest line home. The younger ones, or those newly brought to the region, who have not yet had time to make numerous notes, will get lost easily, for the same reason that we are easily lost in a strange city. Their experience does not guide them farther than a few hundred meters from their home; they are quickly confused, and that is why few of them return.

"The following experience confirms this opinion: I took, at the entrance of a hive situated near the Lake (Leman), 20 bees, which I marked and which I enclosed in a box. Taking them to the distance of six kilometers 3.9 miles), I turned them out in the middle of a meadow. Seventeen of them returned to the hive, some immediately, others as late as an hour afterwards. Three were entirely lost. The next day I again placed in a box the 17 bees which had thus found their way through the fields and meadows, but this time I carried them in a boat 3 kilometers out in the lake. They flew in different directions and finally disappeared. What became of them? No one knows, for they never returned home. The famous "topographic sense," with which some writers have endowed the bees, as they have done with ants, completely vanished in this experiment. Doubtless their ramblings had often led them to the meadow to which I had taken them the previous day; since 17 out of 20 found their way back. But on the lake, where there is nothing for them to find, and where, therefore, they had never wandered, the ill-fated insects, finding no guiding marks, no sign-post, to direct them in the proper direction, being left entirely to luck, were all lost, without exception.

"These experiments were not the only ones that I made upon the bees of our region, but all gave similar results."

We may add to this information that it is not necessary that the bees should have traveled the entire distance from which they are released, in order to find their way home. In seeking their way back they probably go in all directions until they recognize some familiar features of the country.

## Releasing Bees From Packages

We have received some enquiry from readers regarding the manner in which bees are released from packages. In this connection we have been reminded that we failed to explain fully the picture on page 372 of our November number, where O. J. Jones is shown releasing the bees from a package.

The hive is made ready by removing four or five of the frames from the hive in which the bees are to be placed. The package is opened and the cage containing the queen is removed. If the queen is all right her cage is then placed between two of the combs, giving the bees opportunity to release her. The opened package of bees is then placed in the space left vacant by removing the frames and the cover placed on the hive. The bees will shortly leave the package and cluster on the combs. Where the bees are shaken from the package they sometimes take flight without marking the location, and a part of them become lost. Where released as above described there is little danger of losing the bees and no undue excitement.

## Large Hives Again

With great interest I read your article "Advantages of Large Hives." Although it is not the usual custom to have hives of different size in the apiary, I use the 10-frame Langstroth, I wish to introduce some of the so-called Jumbo or Dadant-Root hives and some shallow supers.

1. Can you use regular Langstroth 10-frame bottoms and covers for the Jumbo hives, or are yours wider on account of the 1½-inch spacing?

2. As you prefer 1½-inch spacing, do you use only 9 frames and a dummy, or are the 10-frame hives for this reason a little wider?

3. How high are your shallow supers? Are they higher than the regular shallow supers for dovetailed hives, and could two of those supers, one on top of the other, be used for the regular Jumbo frames?

Wisconsin.

Answer—If you wish to use the Jumbo hive, 10-frame, with 1½-inch spacing, it will be necessary to use wider bottoms.

You can use the Jumbo hive with the same bottom as the ordinary 10-frame Langstroth, by using only 9 frames in a 10-frame hive. The Root make of hives are 14⅝ wide inside. The Lewis make are 14¼. If you use 9 frames spaced 1½ inches, you will have, in the first case 1⅛ inches and in the second case ¾ inch of room for a dummy. This dummy may be used on the cold side of the hive, i. e., the side which is exposed to high winds, usually west or north.

As we use the regular Dadant hive, we have not had opportunity to try the Jumbo, so have not had to solve this question in our practice. But we would recommend that you use the 9 frames and a dummy, if you do not wish to have bottoms of different sizes in your apiary.

This answers your first two questions. Regarding the third, we make our shallow supers, as stated on page 369 of the November issue, with a depth of 6⅝ inches, in the clear, so that the side bar of the frame is exactly 6 inches deep. This was the suggestion of Mr. Langstroth, years ago, when we began to use the extractor. You might make a super which would enable you to use two in place of a hive body. But we do not advise this. We have never seen the need of using shallow frames in deep bodies and have always kept the brood chambers and extracting supers as separate and distinct institutions. We have never regretted it.

Allow us to say that we have never urged anyone to change from the Langstroth to the Jumbo, simply because we do not know whether our friends feel willing to stand the greater expense of large hives. The matter has been discussed because several requests were made for our views and because the matter was mentioned in Gleanings. But we are very free to say that, personally, we prefer the large hives we use, known as Dadant hives, to any other style. Our experience with these hives is now of nearly 50 years, and as time passes we like them better and better.

The cheapest way, however, to make the change from shallow to deep hives is evidently through the use of the Jumbo, in the manner mentioned above.—C. P. D.

# BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

**Large Hives and Women Beekeepers**

Nowadays the 8-frame hive is getting a black eye from all quarters, and seems to have no friends. It may be a little hazardous to say anything in its favor, but it has one advantage that cannot be denied, an advantage that appeals strongly to women. That is its lightness and the ease with which it can be carried as compared with heavier hives. This counts strongly where hives are carried into the cellar for wintering, and still more strongly where they are taken to outapiaries and brought back home in the fall for cellaring. To be sure, some strong man may be had to do the lifting at these times, even if it be some neighbor a mile away, but it frequently happens throughout the season that it is needed to move a hive from one place in the apiary to another, and at such times it is not the most convenient thing to call on a neighbor a mile away.

In the American Bee Journal for November occurs an interesting and instructive article by our editor upon the advantages of large hives. As might be expected from a man who is the soul of fairness, the merits and demerits of large and small hives are very fairly discussed, except in one particular, and that evidently from a misunderstanding. On page 369 occurs this: "The addition of a full story to a middling colony gives too much space above, in spring, when the weather is still cool, as it doubles the capacity of the hive at one stroke. The addition of this full story to a populous colony which is overflowing its brood-chamber, entices the queen away from the lower story, if the lower story is not sufficient for her laying capacity." Clearly the misunderstanding is that the extra story is added above. But among those who use 8-frame hives and add a second story in spring to give the queen more room, is it the general custom to give that room above, or below? What the custom is in this locality may bee seen from the following extract from "Fifty Years Among the Bees," page 105:

"When the colony is beginning to be crowded and there are no colonies needing help, and sometimes even when others do need help, a second story is given. This second story is given below. Putting an empty story below does not cool off the bees like putting one above. The bees can move down as fast as they need the room. Indeed, this second story is often given long before it is needed, and sometimes two empty stories are given, for it is a nice thing to have the combs in the care of the bees. They will be kept free from moths, and if any are moldy they will be nicely cleaned out ready for use when wanted.

"Sometimes when a colony is very strong and a story of empty combs is given below, a frame of brood is taken from the upper story and put below, an empty comb being put in its place above. But unless the colony is very strong, this hinders rather than helps the building up."

This was the invariable plan of procedure, except in the year 1914, when all colonies were unusually strong by the middle of May, and then supers of combs were given above, not because it was the better way, but because it was easier for the beekeeper.

Whatever objection there might be to giving an empty story above early in the season, that objection does not at all apply when the empty story is given below. Instead of making an empty space for the bees to keep warm, the brood-nest is really warmer for having the empty story under it. The bees are not forced to make a start several inches away from the brood-nest, but are allowed to extend the brood-nest downward in a natural manner, extending it just as little or as much as to them seems good. Right here will occur to some the objection that bees would be loth to extend the brood-nest across two pieces of wood and an empty space. There seemed little evidence of this, although no doubt a continuous comb would be at least a little better.

A little thinking will show anyone that this two-story plan with 8-frame hives allows the bees to follow their inclination to keep their brood-nest in a sphere much better than they can do it in a single-story 10-frame hive. Like enough the Dadant hive, with its big frames, is better still in this respect, for in this hive the bees do not have to keep warm the space taken up by the bottom-bar above and the top-bar below. Yet if it should be thought that this space is any great hindrance to having both stories occupied by the queen, a paragraph on the page following the one already quoted is in point:

"I may say here that after a good deal of experience with colonies having two stories, I find that there is no trouble from having the queen stay exclusively in one or other of the stories. She passes up and down freely, keeping filled with brood in both stories as many combs as the bees will care for."

Shirley V. Johennig finding the queen. Though less than 3 years old, she has no fear of bees, and is expert enough beekeeper that she can detect workers, drones, and the queen. The hive above is only 20 feet from the back porch. Mrs. O. B. Johennig, Richmond, Va

Dr. Miller says if he were beginning again he would have something larger than the 8-frame hive. In this view the woman in the case, the one who has been his helper these many years, does not concur. His objection that the small hive requires too close attention to avoid starving in winter is, in her opinion, overbalanced by the convenience and lightness of the smaller hive, and especially of the lighter supers. Of course, those women who are not willing to give the extra attention required by the smaller hives should use the larger or let bees alone.

(I acknowledge the oversight and readily agree that small hives are much more convenient for the ladies. —C. P. D.)

### Punic Bees

What is said by Ph. J. Baldensperger, page 375, about Punics, recalls our own experience with them. Some years ago, at the time when much was being said about Punic bees, John Hewitt sent to Marengo two Punic virgins. Of course , their worker progeny were hybrids, and we had only these to judge from. The most outstanding characteristic of these bees upon being first seen is one not mentioned in Mr. Hewitt's assertions, nor in Mr. Baldensperger's notes upon them. That characteristic is their blackness. They are black, with a blackness beyond any other bees.

According to our experiences, Mr. Hewitt is not far out of the way in claiming that they are good workers.

They are very cross, smoke seeming to have little effect upon them.

As to building sections, our experience tallied with Mr. Baldensperger's: Their sections were so watery as to make them utterly unfit for section work.

Their excessive propolizing was decidedly objectionable.

In considering the items here given it must be remembered that not pure Punics, but hybrids, are under consideration. On the whole, we did not consider it desirable to continue them after the first generation.

## MISCELLANEOUS NEWS ITEMS

### The Iowa Convention

The seventh convention of the Iowa Beekeepers' Association was held at Des Moines on November 6 and 7. Although the attendance was reduced somewhat by the epidemic of influenza, the convention was quite successful. Mr. Morley Pettit, of Georgetown, Ontario, who was formerly the Provincial Apiarist, was present and spoke at two of the sessions. Mr. Pettit had some very good moving pictures showing practical beekeeping; he also used a considerable number of lantern slides in illustrating his lectures. Dr. Phillips and Dr. Demuth, of the U. S. Department at Washington, were present and gave practical addresses. The program was excellent from start to finish.

In accordance with the policy of the Association, which has been to change officers frequently, a new board of officers was elected, as follows:

President—A. F. Bonney, Buck Grove, Iowa.

Vice President—, Hamlin B. Miller, Marshalltown.

Secretary-Treasurer—Prof. F. Eric Millen.

Directors—Edward G. Brown, Sargeant Bluff; F. H. Stacey, Iowa Falls; L. W. Elmore, Fairfield.

### A Sign of the Times

We are again in receipt of Russian bee magazines. We have just received one from Kazan, a city of 175,000, on the Volga, about 450 miles east of Moscow. Does anybody doubt that Russia is going to come out of her trials with new ideas and progress? All that the Russian people need is a chance to govern themselves under democratic ideas.

### Peace or War—Which?

Cross Bees! Crooked combs in ill-managed hives. When we attempt to take out honey, it leaks out in every direction. The bees become excited. The workers become robbers. Stings everywhere. War!

Gentle bees! Good hives, straight combs! No leakage! No robbers! No strife! No stinging! Peace!

Peace, sweet peace Is it so very difficult to secure it? Let us resolve that we will have only gentle bees, well-made hives, no crooked combs, no leaking honey, no robbers! Peace and plenty! A land flowing with milk and honey.

### Kansas Meeting

The Kansas State Beekeepers will meet at Topeka January 7 and 8. A large attendance is expected. For particulars concerning the meeting, address O. A. Keene, Sec.,
1600 Seward Ave., Topeka

### Pennsylvania Beekeepers' Meeting

The next annual meeting of the Pennsylvania Beekeepers' Association will be held in Harrisburg January 21, 22, 23 and 24, in connection with the midwinter Agricultural Show.

A number of interesting addresses

have been promised. For information and particulars, address the Secretary, H. C. Klinger, Liverpool, Pa.

### Switzerland

A letter from the editor of the Swiss Bulletin de la Societe Romande:

October 25, 1918.

Dear Mr. Dadant: I have your note. I am glad that you find something of interest in our little magazine.

You say that your crop is short. I am sorry to hear that, for sales are quick and, if you could export, there would be a great profit, as I believe the price is still higher in France than in Switzerland.

In most of Switzerland the crop was fine, such, in fact, that we have to look back a number of years to find one like it. The first fortnight of July was favorable, during 12 to 14 days giving crops of 10 to 12 pounds per day, and even as far as 22 pounds in a single day. It is honeydew, but of good quality, though very dark. It sells as readily as fine spring honey, at 57 cents per pound, retail and 48 to 49 cents wholesale.

The war situation is favorable, thanks to the formidable help of your country. The Boches are "letting go" and everyone says "thanks to the United States." Your country is now writing one of the finest pages of history.

Beekeeping is getting a new and considerable elan and our little magazine has an increase of a thousand subscribers. We are just now making an investigation, through the presidents of the association branches, concerning the value of honey as an "anti-flu" food. It has been ascertained that beekeepers are generally immune. Just how correct this is we hope to find out.

Cordial and respectful salutations,
SCHUMACHER.

(The honeydew of Switzerland must certainly be better in quality than what we harvest in this country. We have yet to find honeydew that could bring more than half the price of fine clover honey.—Editor.)

### Nebraska Meeting

The Nebraska Honey Producers' Association will hold their annual meeting on Wednesday, January 22, at the University State Farm at Lincoln, Nebr., and have arranged a very full program for the day.

In the morning session Mr. F. C. Pellett, of the American Bee Journal, will give an illustrated talk on "Honey Production as a Business." This will start at 9 o'clock. Another thing in the morning will be a discussion on county organization. This will be led by F. G. Maxwell, of Douglas county, who is secretary of that branch. The Douglas county branch is becoming a very live organization. It has already sent in an order for supplies for members and sent a committee to the extension service of the State asking for aid in getting an extension man for this State, and prospects are becoming brighter every day for such help.

The afternoon session will begin with the business meeting, a new constitution will come up for adoption and everyone who takes interest in the honey business should be present and see that everything is done right.

After the business meeting Professor F. Eric Millen, the State Apiarist from Iowa, will give a talk on "Beekeeping and Beekeepers, as Seen by a Bee Inspector." Several Nebraska beemen who had time, have been to the Iowa meetings and they were so loud in their praise of Professor Millen that we have made arrangements to have him speak.

W. P. Southworth, of Sioux City, will give a talk on "Modern Equipment of the Apiary." Mr. Southworth is President of the Western Honey Producers' Association and they have made such a success of their co-operative work that we have found it desirable to hear how they do their business.

At the finish of our meeting we will hold an open discussion or question box, which will be handled by Mr. H. C. Cook, of Omaha. In Mr. Cook we have a man who has proven what Nebraska is capable of producing when it comes to honey, and I am sure that nearly every beekeeper in the State knows him.

O. E. TIMM, Sec.
Bennington, Nebr.

### Heat Insulators for Beehives

The last quarterly report of the Michigan Agricultural Experiment Station contains an article on the above subject from the pen of R. H. Pettit based on experiments conducted with the aim in view of determining the value of different materials for the purpose of wrapping bees wintered out of doors. We quote the article in its entirety:

"So many claims have been made by users of corrugated paper for the purpose of wrapping and thus retaining heat in winter beehives, that it seemed worth while to test the heat insulating value of corrugated paper as compared with several other forms of packing or wrapping material in common use. These various materials were compared with dead air spaces in standardized chambers of cubical form, the chambers being double-walled, and each being provided with a 2-inch space on all sides, suitable for packing the materials to be tested.

"The experiment was started in 1916, being planned by the writer and started by Mr. G. C. Woodin, an assistant in the experiment station at that time. The observations were completed by Mr. P. B. Wilteberger, the successor of Mr. Woodin, who also computed the resulting data.

"These chambers were stored in a comparatively cool place and a constant source of heat applied electrically inside. Readings were taken, at intervals, of the temperature maintained inside the chambers and these were checked against a chamber of similar construction, but which was provided merely with dead air spaces on all surfaces.

"As will be apparent, the results aimed at are merely comparative. The materials tested were corrugated card board, dried leaves, planer shavings and mineral wool. In all cases enough material was used to supply a 2-inch layer of the material under observation. From our tests it would appear that the heat insulating values of the various substances compare about as follows:

| | |
|---|---|
| Dead air space | 18 |
| Corrugated card board | 33 |
| Planer shavings | 34½ |
| Mineral wool | 35½ |
| Forest leaves | 41 |

"Omitting dead air space from conconsideration, then corrugated card board, the most expensive material used, is least efficient, and ordinary leaves raked up, dried and firmly packed, give the best results of any. They have the further advantage of being easily obtained and are the cheapest material that we could find.

"Tests were also made to determine the relative rates of heat loss when one surface of the chamber was left unpacked. When the bottom surface was unprotected there was a loss of about 3½ degrees Fah., in temperature. One unprotected side produced a loss of 4 degrees. With the top surface alone unprotected, a loss of nearly 5 degrees resulted, which plainly shows us that the loss in temperature from leaving the bottom unprotected is very considerable, indeed."

R. H. PETTIT,
Entomologist of experiment Station.

### Spring Losses—Caucasians

The difficult problem of this locality is to get the bees through the spring from the middle of March to the first of May. My loss during this time has never been less than 25 per cent. The loss occurs with both the outdoor and the cellar wintered. I believe the cause is the absence of bloom for the bees to work on during the days they can fly. Pollen substitutes and feeding do not seem to be able to check the loss.

Last April, when I set the bees out of the cellar, I left a nucleus in the cellar to see how long it could be kept there. It stayed there until the first day of May. The cluster at this time was no larger than a quart measure. Salt sage was beginning to bloom when I set it out, and there was soon an abundance of pollen for the bees to gather. Instead of dwindling, as the others did, this nucleus held its own, was soon gaining, and was ready for supers before many of the colonies that had been set out the first of April. I believe the difference is that the bees of the nucleus were kept inactive till there were natural stores for them to gather. By reason of this experience I intend to keep 300 colonies in the cellar till the first of May next spring.

In the season of 1915 I procured a Caucasian queen to be used as a breeding queen. During the past season three daughters of this queen gave me a total of 850 pounds, 125 pounds of which was extracted. This is by far the largest yield any three queens have given me in one season.

JOHN HENDRICKS,
Powell, Wyoming.

---

### New Jersey Beekeepers' Association

The annual meeting of the New Jersey Beekeepeers' Association will be held in Trenton, N. J., January 16-17, 1919. The program follows:

#### Thursday Morning, Jan. 11

10:00—Report of Secretary-Treasurer.

10:30—Address by President Barclay.

11:00—Economical Extracted Honey Production, Allen Latham, Norwichtown, Conn.

#### Thursday Afternoon

1:30—"An Economical and Efficient Hive Paint." E. D. Warde, Arlington, N. J.

2:00—"Survey of Beekeeping in Morris and Somerset Counties." E. G. Carr, Deputy Bee Inspector for New Jersey.

2:30—"Honey Production as a Business." Morley Pettit, Georgetown, Ont.

3:15—"Queen-Rearing for the Honey Producer." Allen Latham, Norwichtown, Conn.

3:45—"Outdoor Wintering of Bees." E. G. Carr, Deputy Bee Inspector for New Jersey.

4:15—"Boy Power in the Apiary." R. D. Barclay, President New Jersey Beekeepers' Association, Riverton, N. J.

4:30—"The Value of Agricultural Fairs to the Honey Producer." C. N. Greene, Apiary Adviser, Harrisburg, Pa.

#### Thursday Evening

7:15—"Honey Cookery." Mrs. Frank App, State Leader in Home Economics, New Brunswick, N. J.

7:45—"Beekeeping." Morley Pettit, Georgetown, Ont. A popular lecture, illustrated by three reels of motion pictures.

#### Friday Morning, January 17

9:00—Unfinished business and election of officers.

9:30—"Extracted Honey Production." Morley Pettit, Georgetown, Ont.

10:15—"The Two-Hive-Body System of Beekeeping." Allen Latham, Norwichtown, Conn.

11:00—"The Outlook for the Honey Producer in the East." C. N. Green, Apiary Adviser for Pennsylvania.

E. G. CARR, Sec.-Treas.,
New Egypt, N. J.
RICHARD D. BARCLAY, Pres.,
Riverton, N. J.

---

### Michigan Meeting

The annual convention of the State Beekeepers' Association will be held in Lansing on January 21-23. The place of meeting and other particulars will be announced upon the program, which will be in the mail by January 1. Anyone desiring a program should write to the Secretary, East Lansing, Mich. The headquarters will be the Detroit and Kerns (Wentworth) Hotels. A banquet will be held on the evening of January 22. Everyone should be on hand for the President's address, which will be delivered at 1 p. m. on the 21st. This will be followed by the following subjects and others to be announced in the program:

"Large Hives," C. P. Dadant, E. R. Root, J. N. Harris and others.

"Co-operative Marketing," J. N. McBride, State Director of Markets.

Address—Hon. Geo. A. Prescott, Federal Food Administrator.

"The County Association," Miss A. Sly.

"Two Queens in One Hive," Arthur Sharrow.

"Combless Packages," E. A. Leffingwell.

"Honey Resources of the Upper Peninsula," B. F. Kindig.

Other subjects and general information on printed program.

B. F. KINDIG, Sec.,
East Lansing, Mich.

---

### Minnesota Meeting

Because of influenza, the annual meeting of the Minnesota Beekeepers' Association was postponed from December to January 2 and 3, Room 4, Plant Pathology Building, University Farm, St. Paul, Minn.

L. V. FRANCE, Sec.

---

### National Beekeepers' Association

The annual convention of the National Beekeepers' Association will be held at the Hotel La Salle, Chicago, February 18, 19 and 20, 1919.

The complete program has not been arranged, but the following speakers expect to attend:

E. R. Root, editor of Gleanings, "Past, Present and Future of Beekeeping."

C. P. Dadant, editor of the American Bee Journal, "International Beekeeping."

E. D. Townsend, editor of the Domestic Beekeeper.

Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C., "Factors Influencing the Secretion of Nectar."

Prof. F. Eric Millen, Iowa Agricultural College, "Beekeeping as Seen by a Bee Inspector."

Prof. E. G. Baldwin, Extension Service Dept., Purdue University, Indiana..

Kenneth Hawkins, Plainfield, Ill., "Beekeeping in Dixie."

Prof. H. F. Wilson, University of Wisconsin, "Organizing Local Societies."

Chas. B. Justice, General Manager California Honey Producers' Co-operative Exchange.

Dr. C. C. Miller expects to attend one day, if he is able.

A question box will be featured at each session and with the very highest authorities on the different branches of the beekeeping industry present, no beekeeper can afford to miss this convention.

FLOYD MARKHAM,
Sec.-Treas.

---

### Western New York Honey Producers' Association

The postponed meeting of the Western New York Honey Producers' Association will be held at the Genessee Hotel, Buffalo, N. Y., on Friday and Saturday, January 10 and 11, 1919. Program on request.

HOWARD M. MYERS, Sec.,
Ransomville, N. Y.

---

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

Honey arrivals since last report:

**Medina, Ohio**—57,400 lbs. from Ohio and 34,500 lbs from Idaho arrived.

**Hamilton, Ill.**—No arrivals.

**Keokuk, Iowa**—2,760 lbs. from Iowa and 74 lbs. from Illinois arrived.

#### Shipping Point Information

**San Francisco, Calif.**, Nov. 30—Supplies light. Demand and movement moderate. Cash to producers at country loading points: Extracted, per pound, water white, 22-23½c, sage white, 20-23c; light amber, 18-20½c; dark amber, 18-19c. Beeswax: supplies moderate, 35-40c per pound.

**Los Angeles, Calif.**, Nov. 30—Supplies very light. Very few sales. Cash to producer on farm: Extracted, per pound, white, supplies practically exhausted, too few sales to establish market; light amber, sage and alfalfa, 21½-22c; amber, no sales reported. Beeswax, 36-37c per pound.

**Chicago**—1 Utah, 1 Colorado and approximately 1,000 packages from Illinois, Wisconsin and Michigan arrived. Demand and movement slower, little change in prices. Sales to jobbers, Wisconsins and New Yorks, extracted per lb., buckwheat, No. 1, 21-22c; Utahs, Colorados and Illinois, extracted per lb., white, No. 1, 25-27c; amber, 22-24c; comb, No. 1, 24-section cases, $6-6.50. Beeswax, 40c per pound.

**Denver**—Approximately 40,000 lbs. extracted arrived. Receipts moderate. Demand and movement slow; no change in prices. Few sales. Sales to jobbers, extracted per lb., white, mostly 25c; light amber, 24c; comb, 24-section cases, white No. 1, $6.30; No. 2, $5.85. Beeswax, 38c per pound.

**Kansas City**—No arrivals, no cars on track. Supplies light. Demand and movement slow, little change in prices. Quality and condition good. Few sales. Sales to jobbers, Missouri, extracted, no sales reported; comb, light amber, 24-section cases, No. 1, $8.50; Colorado, light amber, 24-section cases, No. 1, $7.50-7.75.

**Cincinnati**—1 Nevada arrived, L. C. L. receipts moderate, nearby receipts very light. Sales to jobbers: Extracted, per lb., demand and movement slow, little change in prices. Alfalfa and sweet clover 29-30c, amber, no sales reported; comb, demand and movement good; white, 24-section cases, No. 1, $7-7.25; fancy, $7.50. Beeswax: demand slow, few sales, yellow average 40c per pound.

**Minneapolis**—Home-grown receipts light. Demand and movement good. Supplies moderate. Sales direct to retailers, Californias, Minnesotas and Colorados, extracted, per pound, prices slightly higher; quality and condition generally good; 60-lb. cans, 26½-30c; Colorados, comb, no change in prices; quality and condition good, white fancy, 24-section cases, $7-7.25.

**St. Paul**—Home-grown receipts light. Supplies moderate. Demand and movement good; no change in prices. Sales direct to retailers, Colorados and Minnesotas, few sales. Extracted per lb., mostly 30c. Colorados, quality and condition generally good; comb, white fancy, 24-section cases, $7-7.25.

**Spokane**—No arrivals; supplies light. Demand and movement slow; very few sales, on account of high prices. Quality and condition good. Sales direct to retailers, Idahos, extracted, per lb., 5 and 10-gallon cans, white alfalfa, 27-28c; comb, white alfalfa, 24-section cases, No. 1, $7-7.25; No. 2, $7.

**Philadelphia**—5 barrels southern, 4 kegs and 75 cases containing 10 gallons each from New York of extracted and approximately 900 cases of comb from New York arrived. No demand, very few sales. Sales to manufacturer, extracted, southern, $2.55-2.60 per gallon.

**New York**—400 barrels and 50 tierces from Porto Rico arrived. Demand moderate; little change in prices. Porto Rico, extracted per gallon, $2.35-2.60; mostly $2.45; California extracted, per lb., white, 27-29c; light amber, 24-27c; New York Comb, 24-section cases, 30-35c per lb. Beeswax: 320 bags from Porto Rico arrived, demand moderate; imported, dark, 40-42c per lb.; domestic, light, 42-44c per lb.

**Cleveland**—24,600 lbs from Nevada arrived. Demand slow; no change in prices. Sales to bakers and wholesale confectioners; western, extracted, per lb., white orange blossom, 60-lb. tins, 33c; light amber and sage, 31c; white clover, 28-30c.

**St. Louis**—Supplies light. Demand moderate. Sales to jobbers, southern extracted, per lb., amber, barrels 24-25c. California and southern, extracted, per lb., amber, cans, 26-28c; Comb, practically no supplies on market. Beeswax: prime, 41½c per pound.

**Portland**—Demand and movement slow. Quality and condition ordinary, mostly amber. Sales direct to retailers, extracted per lb., 24-27c; comb, 24-section cases, $6.75-7.75, according to weight and grade.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

## Wintering in Cellar

I have been reading your answers to bee-keepers for the last ten years and have found almost every question pertaining to bees answered. Would it not be better to winter bees in a house cellar than out of doors, even though the temperature gets near the freezing point. I had one colony which I neglected to pack last fall. About the 15th of December I put it in the cellar without packing of any kind. The entrance was nearly closed with dead bees and ice, but it came through all right and gave me over 100 boxes of surplus, or as good as any of my colonies. NEW YORK.

ANSWER.—Occasional cold in a cellar is not so bad as steady cold. I would rather risk a cellar with the temperature occasionally below the freezing point and at other times at 45 degrees or higher, than one with a steady temperature of 38 or 40 degrees. Again, much depends on purity of the air. I would rather risk 40 degrees with the air constantly changing than 50 degrees with stagnant air. The fact that you did well with the cellar last winter is a pretty good indication that you ought to do as well other winters.

## Using Old Combs

1. I have six empty hives; the bees, I believe, died from European foulbrood. The hives have not contained bees for two years. Do you think I could put bees into these hives next summer and leave the old comb in them without danger to the bees? If this is not possible, please let me know how I could "cure" the hives.

2. If I would send you a piece of comb could you tell me what kind of disease the bees died of, or what kind of foulbrood it is?

3. Does it make any difference whether comb is black or white when it is sent to a manufacture to be made into foundation? WISCONSIN.

ANSWERS.—1. If the disease is of the European sort, and not American the hive and all its parts may be used without "curing," except the combs. In an apiary entirely free from European foulbrood I should hesitate about using them. As to "curing" them, that is, getting rid of all the germs in them, that possibly might be done by using them for one season as extracting combs; although some might be over-anxious enough to think there would be danger in that.

2. No; it would likely do no good to send samples to me; send them to Dr. E. F. Phillips, U. S. Department of Agriculture, Washington, D. C. If you write to him in advance he will send you a box in which to mail the sample, and after receiving sample will advise you fully what to do, all without charge.

3. No.

## Sugar Feeding in Cellar

I have about 170 colonies of bees and they are very light and I am afraid that I am going to lose the biggest part of them. I have put them in the cellar just the last few days, and it really makes my heart ache to see them in such a condition and that I am unable to do anything for them. The honey crop here was almost a total failure. Hardly any of the bee-keepers got any honey. I got a little, and when I filled out my application for sugar I told them just what I had, but before I knew that I could not get sugar I had sold a part of my honey. I fed 900 pounds of it and still the bees need more, and I have almost begged for sugar, but to no avail; they wrote me that I would have to take my medicine, which was, I think, rather a hard way to talk to a fellow. They claim that I was profiteering, but such was not my intention. I had honey enough to have carried my bees through if I had fed it all, but at the time that I fed I thought I had given them enough. I got, all told, 2,800 pounds. Now I have some hopes that things will shape around before long so that sugar will be available and what I would like to have you tell me is how can I feed my bees in the cellar. I have never had to feed much, and don't know anything about cellar feeding and have no receipt for making candy for that purpose. I have put the light colonies on top as near as possible, but of course there are so many they could not be all on top. What would be the consequences if sugar syrup was fed in the cellar?

I would be very thankful for information as to how to proceed in case that I get sugar and would gladly pay you for the information if you would take anything.

Is there any way I can feed the lower colonies in the tiers. ILLINOIS.

ANSWER.—If you feed syrup in the cellar it is likely to stir up the bees to such an extent as to make serious trouble. Candy is far safer. To make the candy is not so very difficult. Into hot or boiling water stir as many quarts of granulated sugar as there are quarts of water. Let the sugar be stirred in slowly, stirring all the while. Pouring in the sugar will, of course, cool down the mixture, and that is all right, for you should make sure that all sugar is thoroughly dissolved before it begins to boil, lest some of the undissolved sugar be scorched, which would be fatal to the bees. From time to time drop a little of the syrup into cold water. It will be ready to pour out when it is brittle upon being dropped in the cold water, and yet appears a bit soft and tough when put in the mouth. Have the top of a table perfectly level, and lay on it sheet of waxed or paraffined paper, with wooden strips one-fourth inch thick under the edges of the paper. As soon as you find your hot material is at the right stage, pour it onto the sheets of paper, and of course when it is cool you will have sheets of candy one-fourth inch thick. When it begins to harden, take a knife and score the places where you want to break the candy, so as to make it the right size. All you have to do now is to lay these thin cakes of candy on top of the top-bars and cover up warm.

The cakes of candy being so thin, it may be you can succeed in shoving them into the entrances of hives not on the tops of the piles. If there is considerable space between the floor and the bottom-bars it will be advisable to thrust thin strips of wood under the candy, so it will be raised up against the bottom-bars, thus making sure that the bees will get at the candy. Even then a weak colony might not get down to the candy. It might help to warm up the cellar, and possibly to blow into the hive entrance.

## Color of Crossed Bees

1. What is the color of worker bees from a tested leather color Italian queen?

2. How can the difference between the hybrid and 3-banded be detected if the hybrid is a cross between blacks and goldens? NORTH CAROLINA.

ANSWERS.—1. When color enters into the naming of any kind of bees, it is the worker and not the queen that is considered; so when a leather-colored queen is mentioned it means that her workers are of that color.

2. The workers of a hybrid colony will be mixed in appearance; some of them may be like one side and some like the other, or the same bee may be midway in appearance between the two.

## Requeening

Next year I intend to buy untested queens for each colony, then just as clover opens up I will go to each colony and take the old queen with one frame of brood and bees and start a new colony. Could I give the old swarms the new queen right away? Would they be safe from swarming the first summer? Would you approve of this method? MINNESOTA.

ANSWER.—Yes, you can give the new queen right away, of course with the usual precautions upon introducing and the likelihood is that there would be no swarming until the following year, it being taken for granted that the new queen will be one that has been laying but a short time. But I think you will be wise to make a change in the program, proceeding in this way: Instead of taking away the queen with one frame of brood, leave the queen with one frame of brood in the old hive and take away all the rest of the brood with adhering bees, introducing the new queen to these latter bees. In this way the introduction of the queen will be safer, for the field bees will all return to the old queen, and it is the old bees chiefly that make trouble when a new queen is introduced. There will also be less danger of swarming.

It is quite possible that you will reply, "Yes, but I would like to have the new queen with the main colony, so that there would be a bigger harvest." Believe me, the harvest depends chiefly on the force of bees left by the old queen, and the bees that will come from the brood she has left. In a good season, especially if you have a fall flow, you may get surplus from both divisions, whereas, if you take away the queen with one brood, you can hardly expect any surplus from this offshoot.

(In addition, a new coloniy, made with only one frame of brood and bees, with the old queen, and put on a new spot, may be too weak. At the same time, the colony from which this one brood and queen have been taken may remain strong enough to prepare queen-cells and swarm with the new queen introduced to it. So the method advised by Dr. Miller is the better method, by all means, if no natural swarming is wanted.—Editor.)

### Miscellaneous

1. What caused my bees to swarm out and then return and carry out the queen?
2. I intend to transfer my bees in Jumbo hives. Can I produce comb honey with this hive? Which would be the better, the 8 or 10-frame?
3. I have heard that bees will not stay in a home-made hive unless it is washed with salt and water. Can you tell me if this is true?
4. Do you think I can buy nuclei on Jumbo frames?
5. Would a 3-pound package of bees with queen do well if put in a Jumbo hive with frames of foundation?
6. Do untested queens prove successful?
7. What do queen breeders mean by the term (selected) tested queens?
8. How long does it take a virgin before she is a laying queen?
9. What should be the distance between bottom-board and frames and between top of frames and super?
10. How long will bees live without a queen?
11. Will there be a big demand for comb honey the coming season?
12. Will the pound-package men have as much trouble filling orders the coming season as they had last year?
13. What is the size of the Dadant shallow extracting frames?
14. What depth of shallow extracting frames would prove the best on Jumbo hives?
15. Will bees chew cardboard if used in the hive as a division board? ILLINOIS.

Answers.—1. It is quite possible it was a second swarm, having two or more young queens. Such swarms not infrequently return to the hive, perhaps because the chosen queen has been fertilized and then the superfluous queens are killed and carried out.

2. Yes, and perhaps the larger hive may be better.

3. That's all bosh.

4. Doubtful.

5. Yes, of course, with a good season.

6. The great majority of them do; but of course some are unsatisfactory.

7. It's the ones they pick out as being better than the average, in their opinion.

8. She is likely to be laying when 8 or 10 days old, but sometimes later.

9. About ¾ and ¼ inch, respectively.

10. In the working season such a colony will last something over two months.

11. I don't know, but expect a good demand for both comb and extracted.

12. I don't think so.

13. Six and a quarter inches in depth.

14. About 6 inches, likely.

15. Sure.

### Pound Packages

1. What can I do to keep the little worms or maggots out of comb honey after it is taken off the hive and put away for winter? I put some up in pound cartons and when I went to use it, it was full of worms.
2. Can I send south and get pound packages of bees with queen? When they come can I go to my strong swarms, take out frame of brood and give it to them? Will they be strong enough to take care of them? Or would it pay better to get 2-pound packages?
3. Will it weaken the swarms I take the brood from enough to affect their honey production?
4. I requeened some black bees with Italian queens about September 20. I looked about three weeks later to see if they accepted their queens. I found every cell full of honey or beebread, but could not find the queens. Do you think it was too late for them to lay eggs this fall?
5. If the queens are dead will they go through the winter. Can I requeen in the spring?
6. Do you think a few cells of American foulbrood will disappear in a colony of bees by keeping it strong with a prolific queen? NEBRASKA.

Answers.—1. The best thing is to have Italian bees that will keep the moth at bay. Even with them it is possible that there may be some trouble with "worms" in comb honey, in which case you should fumigate the combs before the little pests come to good size, say two weeks after the combs are taken from the hive. You can fumigate with burning sulfur, in which case the eggs of the moth will be unharmed, and you must fumigate again when they have hatched, say two weeks later. If you fumigate with carbon disulfide no second fumigation will be needed, as eggs and all will be killed.

2. You may do very well with a one-pound package, but a larger package with more combs will be better on the whole.

3. Yes, taking away brood from a colony will lessen its yield, but the gain may be more than the loss.

4. It may have been; it is impossible to say.

5. Yes; but a queenless colony is not likely to winter so well as one which has a queen.

6. No; instead of disappearing it will increase.

### Uniting

This is not a good beekeeping locality, and I am not a good beekeeper. I am looking for a system as near automatic as possible, that will yield about 10 pounds of chunk honey per colony in an average year. I think I could get some honey by the old method of smothering half the colonies every fall and then dividing the remainder every spring, as they seem to get enough to winter even when too weak to draw out all the combs. Do you think it would be practicable to divide a colony in spring and put one-half with the old queen in another hive on top of the old one, with a 3-inch double screened hole in the center of cover of lower hive, so that the two hive scents would remain similar; then kill the top queen in the fall and take all the honey that wouldn't go in the lower hive? I suppose it wouldn't do to unite them without killing one queen, even though she happened to be hard to find. MASSACHUSETTS.

Answer.—Your scheme might work to your satisfaction sometimes, and sometimes not. There would be no trouble uniting in the fall, for you could unite without finding either queen, leaving to the bees or the queens themselves which should be left. But there might be trouble galore long before fall. I suppose you are counting that when you put the queen in the upper story the bees will rear another queen in the lower story. Very likely; and when the first queen emerges the bees may decide that that is a good time to swarm, the very thing you are trying to avoid. Why not vary the plan, making it the Demaree plan? When the season has advanced so that you think there may begin to be danger of swarming, put all but one brood in an upper story, leaving the queen with the one brood in the lower story, vacancies being filled out with drawn combs or full sheets of foundation, and a queen-excluder between the two stories. A week or ten days later kill all cells in the upper story. Then you will be saved all trouble of uniting in the fall, and have only honey above the excluder. Of course this honey will be in old combs, but it would be in your proposed plan. The best thing will be to extract it, and you should not be satisfied with any such amount as 10 pounds per colony.

### Moving Bees

I have 60 colonies in 10-frame, dovetailed hives, and I am going to have them moved 700 miles by freight. Will you please tell me what is the best way to pack them? ILLINOIS.

Answer.—In the limited space allowed I cannot go into very full particulars, but will say in general terms that you must plan so that the hives shall not be allowed to move about; that they shall be placed so that the frames of the hive shall run parallel with the rails of the road, and that plenty of ventilation must be allowed if weather should be warm, and if a very hot spell should occur water must be sprinkled upon the bees.

### A Start in Beekeeping

I have always been afraid of bees. But a swarm took possession of some empty space under the floor of my chicken house this summer and I had to do something. After much reading, I made a hive according to directions and said to the bees what Sir Nigel said to the yellow horse: "I am your man and you are my bees."

I puffed a bit of smoke at them and in they went. but sooner than I could say it they came out again in force, so I put down the smoker and pried up the floor. That broke the combs loose from the floor boards and left them on the ground, and the bees sticking to their combs for dear life. They let me lift them up off the ground, one piece of comb at a time, and put them in the hive.

It was only a little while till I had them so tame I could go out and lift off the cover and tickle their little whiskers, or whatever you call it, and they seem to be as glad to see me as to see their queen.

But, doctor, how should a new fellow like me go about it to build up an apiary? COLORADO.

Answer.—That question nearly takes my breath away. One way is to serve an apprenticeship of seven years or less with some good beekeeper. Another way, one that will probably suit you better, is to spend a part of your time this winter studying a good textbook on bees, such as Dadant's Langstroth, and then be ready next spring to go at the matter understandingly. Now that's a very general answer, isn't it? Well, your question is a very general question. In the meantime it will be no harm for you to get the book containing my answers to 1,000 beekeeping questions, and when you find some particular question arise that does not seem answered by any book you have, send that question to me and I'll do my best to answer it in this department. That's just what this department is for.

### Carniolans or Italians—Kind of Hive

1. Would I get better results in raising a nucleus colony with a Carniolan queen than I would with an Italian? My beebooks say that Carniolans rear large quantities of brood.
2. What kind of hives would you use (double-walled or single) to winter bees out of doors in northern Indiana?
3. What do you think about A. G. Woodman's Protection Hive? INDIANA.

Answers.—1. You would probably find not much difference, and I would expect as good results from Italians.

2. Like enough single-walled, well packed.

3. I have had no experience with it, but suppose it to be a good hive.

### Sheets of Foundation Short

I use the regular Hoffman frame, and I bought some comb foundation of a company this fall, and it is about three-eighths of an inch shorter than the length of the frame, leaving a space of about three-eighths of an inch between the foundation and the end-bar. Would you advise me to put the foundation in the center of the frame, or put it to one side and leave the three-eighths inch space on the other side, between the foundation and the end-bars?

VERMONT.

Answer.—With proper precautions it is possible to have foundation cut so as to fill the frame entirely, and have it built out all right; but the foundation is quite commonly inclined to do a little stretching, in which case there is some buckling, making bad work. So your foundation was probably advisedly made a little scant so a little stretching could be adjusted, with the expectation that you would allow the space to be equal at the two ends.

### Queen Cells—Queen Introduction—Brood Wintering

1. Can one or more queens be successfully wintered in one colony? If so, what is the method?

2. Are queen cells ever built horizontally? If so, are queens that are raised in them as good as those raised in vertical cells?

3. Is there any noticeable difference in the activity and production of colonies whose entrances face the west, as compared to those facing east?

4. What are the good or bad points of a frame with end and bottom bars the same width as the top bar, other dimensions being standard?

5. I introduced queen to colony 24 hours queenless, about September 23. The queen was weakened, some attendants being dead. A week later I could see a few golden bees on the combs among the blacks, but found no queen. Quit feeding on November 1. No brood. Saturday, November 2, the new queen arrived, was placed in the cage on frames above the cluster. At 4 p. m. Monday evening candy was nearly eaten through. Tuesday evening about half of the attendants were dead and beeway not quite through the candy. I removed the screen on edge of cage and replaced it above cluster. Wednesday evening still some candy in cage; all but queen and two attendants dead; queen still active; removed wire screen and placed case on its side over cluster November 16 bees were flying nicely, but no indications of robbing. November 17 opened hive and found plenty of stores and about 200 cells of capped brood; also about a dozen cells of brood in the earlier stages of development, all apparently unharmed. Every bee was dead, the hive bottom covered; also the ground in front of the hive was strewn with dead bees. The queen had what seemed to be a sting in her side near the base of the wing What do you think was cause of this?

6. Please recommend a good book on the honey flowers of North America.

7. Is catnip a good honey plant?

8. I have some old brood combs that are quite black. Can they be bleached and still be good for brood?

9. Can a colony winter too warm? For example, if packed in sawdust so that little or no heat would escape and weather conditions would have to vary extremely to affect it from the outside?

10. March, 1909, page 101, you say: "Let bees swarm and * * * 21 days later add rest of bees to swarm and melt up the combs" Why on the 21st day? If a new queen is present in the old hive, will there not be brood then?

Answers.—1. No; although two or more nuclei, or two colonies, may be wintered in the same hive, separated by thin, bee-tight partitions.

2. In rare cases, where the cell is crowded for room, as on the edge of a comb next to a bottom bar, I've seen them horizontal. They're likely as good as any. I've turned cells upside down, and the queens from them had a stubby posterior.

3. I've had them facing all ways and could never make out any difference, although it is possible that in some cases there might be a difference.

4. The Miller frame, which I have been using for years, has top-bar, bottom-bar and end-bars uniform in width, 1⅛ inches, throughout their whole dimensions I'm not sure that either advantages or disadvantages are worth quarreling about. The frame is a trifle stronger for the greater width, and the smaller space between end-bars and bottom-bars makes a little less building of bits of extra comb. The wider bottom-bar is more in the way of an uncapping knife.

5. I don't know. You say there was no indication of robbing on the 16th, and plenty of stores the 17th, so that bars out robbing, and I have no other guess.

6. There is no such book published that we know of. However John H Lovell has published a book, "The Flower and the Bee," which is on the pollen plants. Our associate editor, Frank C. Pellett, is writing articles on the honey plants, and these will be published in the American Bee Journal from time to time.

7. Excellent.

8. I don't think so; the bees prefer the blackest.

9. I doubt about the "too warm"; but it's just possible too much packing might under some circumstances make it too cold, not allowing the sun to heat up the hive on a warm day. But I may be mistaken in that.

10. The swarm usually issues when the first queen cell is sealed. Then in 21 days the young queen would hardly have more than eggs, or so little brood as to be negligible.

### Moving Bees in Oregon

We wish to move our apiary of about 120 colonies during February or March, 18 miles by river boat, then transfer to box-car, and 150 miles by rail. This is a very rough and mountainous country, and travel is often slow and uncertain. Bees may have to be shut up for several days, probably not less than 5 or 6. Though we have but little freezing weather there is no really warm weather during our winter months. With a few sunny days now and then bees fly more or less all winter, often bringing in some pollen. Our practice is to leave on a shallow super containing some honey for winter stores, which in moving will give them extra air space.

1. How much top ventilation, if any. would

2. If bees are active they will need water

2. If bees ar eactive, will they need water while shut in?. It is nearly always cool here in the shade, even during summer. Would like suggestions on moving bees under our conditions. Honeyflow starts here in April.

OREGON.

Answers.—1. Something depends upon the amount of bottom ventilation. If your hives are like mine, with entrance 2 inches deep, and 2 inches space under bottom-bars, in a cool time there might be no need of further ventilation. Otherwise it might not be safe, and it may be better to have wire cloth the full size of the top.

2. Under such circumstances they are likely to need water, especially if they crowd against the opening, in which case a very strong colony might be suffocated. Spraying with water will not only quench their thirst, but cool them off and drive them back.

### Large Packing Cases

I packed my sixteen colonies of bees in winter case big enough for same by making two rows of them, eight in row, in block form, back to back, and snug in rows; would they mix with one another when out on flights, enough to hurt?

I use matched lumber 16 ft. long to make this case. I find it cheaper, also much easier.

NEW YORK.

Answer.—With eight colonies in a straight row standing close together, there will be some danger of mixing if all are just alike, with no objects to help mark the location. A tree or a post standing in front of the hives will help greatly. If there is nothing of the kind, you can stand a board, leaning against the hives at the middle of the row. It might be better to have two boards, one 5 feet or so from each end.

### Feeding in Winter

1. I have 29 colonies of bees that will need feeding in early spring. I don't want to disturb them to note their condition, on account of the packing, which I want to leave on until warm weather. I want to feed in the open. Will there be danger of some filling their hives too full? How thin should the syrup be, and how much ought I to allow for each colony?

2. If I should leave a super of honey on each hive through the winter and remove it before clover blooms, would it extract all right?

MISSOURI.

Answers.—1. Without knowing how much honey is in each hive, it isn't easy to say how much you should feed. At any rate, you will hardly be in danger of crowding any brood-chamber if you give not more than 10 or 15 pounds of sugar (not syrup) for each hive. Hardly that much will be needed. Equal parts of water and sugar will work all right.

2. There is some danger the honey may be candied.

### The Illinois Meeting

Owing to the raging influenza, the Illinois meeting held in December, had the smallest attendance it has had for years, barely 20 being present. Illinois rarely has a large attendance of beekeepers. This is more strange since the association is one of the largest in numbers in the United States, having at present nearly 500 enrolled members. This is probably due to the fact that the annual report of the meeting is published in book form.

However, if the Illinois beekeepers who read this could appreciate what they miss by failing to attend, more of them would go in the future. The personal intercourse, between members, the getting acquainted with leading beekeepers (we had Pettit and Miller this time), the occasion offered to ask questions to be solved, all combine to make the meeting both pleasant and useful.

At this meeting 24 questions on different subjects concerning bees were asked, discussed and answered. Beekeepers of Illinois, do not fail to attend future meetings.

We will give a short synopsis of this meeting in February.

### Nebraska Meeting Postponed

Owing to influenza restrictions, the Nebraska meeting, mentioned elsewhere in this issue, is postponed indefinitely

### Texas Beekeepers

Dallas County, Texas, beekeepers organized recently with 26 charter members. W. E. Joor, of Dallas, was chosen President, and A. D. Fraser, Secretary. The association will meet again the fourth Tuesday in January.

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

## Are Now Booking Orders for 1919 Spring Delivery

Twenty-three years of Select Breeding gives us Bees of Highest Quality and Vitality.
Largest Package Shippers and Queen Breeders in the South.

**1500 Colonies of Bees and 1500 Nuclei**

**10,000 Pounds of Bees ═ Annual Capacity ═ Italian Queens, 15,000**

SAFE ARRIVAL AND SATISFACTION WE GUARANTEE

Our Circular and Price List for 1919 is Now Ready to Mail

**M. C. BERRY & CO., Hayneville, Alabama, U. S. A.**

## CYPRESS CATALOG

*Durability Problem Solved*

Buy hives only once in a life time and get satisfactory service. Prices are much less, which economy solves the problem of keeping more bees with me and many other beekeepers. My Cypress catalogs, which are now ready to mail out, will tell you all about it.

**J. J. WILDER**
WAYCROSS, GEORGIA

## Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading. Send us your order for blank books and let us bind your magazines.

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**

## GIANT TOMATO-CUCUMBER-PEANUT-10c

Giant Climbing Tomato

**Here Are Seeds of Three Valuable and Interesting Varieties You Should Grow In Your Garden This Year.**

**Giant Climbing Tomato**—Is one of the largest grown. Vines grow very strong and will carry an enormous weight of fruit, very solid, crimson color; specimens often weighing 2 to 3 lbs. each.

**Japanese Climbing Cucumber**—Is a grand variety from Japan; can be trained to fences, trellises or poles and save space in your garden. Fruits early, growing 10 to 15 inches long, and are good for slicing or pickling.

**Early Spanish Peanuts**—Earliest variety and a great Peanut for the North; easy to grow, enormous yielder, and a few hills in your garden will be very interesting to show your neighbors.

**Special Offer:** I will mail one regular sized **Packet of Tomato, Cucumber and Peanut for only 10c, or 3 Packets of each for 25c.**

My new **Seed Book of Garden Seeds** is included free. Order TODAY.

Early Spanish Peanuts

Climbing Cucumber

**F. B. MILLS, Seed Grower, Dept. 11 Rose Hill, N.Y.**

## SEEDS

**OLDS' Catalog**
**TELLS THE TRUTH**

With carefully written descriptions, true illustrations and conservative statements, **Olds' 1919 Catalog** is a true guide and a most valuable book for everyone needing seeds.

***OLDS' SPECIALTIES***

**Seed Potatoes.** The new Olds' White Beauty and 10 others, choice certified stock. **Seed Corn**—Wisconsin fancy ear corn. **Seed Oats, Wheat, Barley, Clover, Alfalfa, Timothy,** Wisconsin tested, high-grade seed. **Samples FREE,** all field seeds. Buy from samples. **Garden Seeds, Flower Seeds, Bulbs, Nursery Stock, Poultry Supplies, Tools, etc.**

Write today for **Olds' 32nd Annual Catalog**

**L. L. Olds Seed Co.** Drawer C 1 Madison, Wis.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

### BEES AND QUEENS

GOLDEN QUEENS that produce Golden workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1 each; tested, $2; breeders, $5 and $10.
2Atf J. B. Brockwell, Barnetts, Va.

NO MORE QUEENS this season. Root's beekeeers' supplies.
A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50. Garden City Apiaries,
San Jose, Calif.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each; half doz., $4.50, or $8 per doz. Select untested, 90c each; half doz., $5.50, or $10 per doz. Tested. $1.50 each. Safe arrival guaranteed. Tillery Bros.,
R. 5, Box 1D, Georgiana, Ala.

FOR SALE—Bees by the pound for early shipment; safe delivery guaranteed.
H. E. Graham, Gause, Texas.

GOLDEN Italian QUEENS, NUCLEI AND PACKAGES—Untested queens, each, $1; 6 for $5; doz., $9; for larger lots, write for prices; also nuclei and packages. Booking orders now.
L. J. Dunn,
No. 59 Broadway Ave., San Jose, Calif.

FOR SALE—From 1 to 100 strong colonies extra fine strain Italian bees, with winter stores; select tested queens in 1-story 8-frame single-wall hive, standard full depth self-spaced Hoffman frames; nearly all wired. If sold before January 1, $8 each; same colonies on frames without hives, $6 per colony. The bees are free from disease. F. o. b. here.
Wilmer Clark, Earlville, Mad. Co., N. Y.

QUEENS—3-banded Italians, from best stock; untested queens in April, May and June, one, $1; twelve for $10. Tested, $1.50 each; if you want as many as 50 queens, write for prices and discounts on early orders; no disease. Safe arrival and satisfaction guaranteed.
O. D. Rivers,
Route 4, Honey Grove, Texas.

QUEENS—Bees by the pound, 3-banded and Golden Italians. The best of either. They are hustlers, gentle, cap their honey white, are very resistent to European foulbrood. Now that peace has been declared, our boys will be home for service. We believe the express companies will be able to deliver promptly. So we are also quoting prices by express. Booking orders now, one-fourth down, balance at shipping time. By parcel post, prepaid, one 1-pound package, $2.90; 2-pound, $5; 3-pound, $7 By express, f. o. b. here, one 1-pound package, $2.40; 2-pound, $4.25; 3-pound, $6.25. Select untested queens, $1.50 each; tested, $2.50; select tested, $3 each; 10 per cent discount on orders amounting to 25 packages or more. Add price of queen wanted. Send for free circular giving details.
Nueces County Apiaries, Calallen, Texas,
E. S. Ault, Prop.

FOR SALE—Italian queens and bees by the pound; early shipments; guaranteed safe arrival and no disease.
Brazos Valley Apiaries, Gause, Texas.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50.
H. G. Dunn,
The Willows, San Jose, Calif.

A NICE PACKAGE OF BEES—1-lb. package with untested Italian queen, $3.50; 2-lb. package with untested Italian queen, $4.50; 25 1-lb. packages or more (one order) with queens, $3 eacr; 25 2-lb packages or more (one order) with queens, $4.25 each. Reference, the Security Bank and Trust Co. of Wharton, Texas.
W. H. Moses, Lane City, Texas.

## HONEY AND BEESWAX

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section.
Charles Israel Bros.' Co., Inc.,
486-490 Canal St., New York.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 6c a pound for wax rendered.
The Fred W. Mnth Co.,
204 Walnut St., Cincinnati, Ohio.

FOR SALE—Clover, heartsease, No. 1 white comb, $6.50 per case; fancy, $7; extra fancy, $7.50; 24 Danz, sections to case; extracted, 120-lb. cases, 30c per pound.
W. A. Latsbaw Co., Carlisle, Ind.

FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.
A. G. Woodman, Grand Rapids, Mich.

FOR SALE Ten cases extracted honey (70 per cent buckwheat), 25c per pound; two 60-lb- cans to case
H. G. Quirin, Bellevue, Ohio.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa. Monroe, Wis

FOR SALE—Forty cases No. 1 white comb honey, 12 to 15 oz. First decent offer f. o. b. here gets it.
J. Gakler,
Route 1, Memphis, Tenn.

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

FOR SALE—12,000 lbs. white extracted honey in 60-lb. cans, cased; make offer.
J. N. Minkes, Box 525. Basin, Wyo.

FOR SALE—Fifty 60-lb. cans or extracted honey (clover and heartsease blend), 25c per lb.
A. L Kildow, Putnam, Ill.

FOR SALE—Choice buckwheat honey, in cans or pails.
W. H. Hyde, New Canton, Ill.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

FOR SALE—Extracted honey; clover and buckwheat, put up in 60-lb. tin cans.
H. B. Gable, Romulus, N Y.

FOR SALE—60,000 lbs, strictly white clover extracted honey, extracted light colored, heavy bodied, fine flavor, in 60-lb. new cans.
J. B. Mason, Mechanic Falls, Maine.

## WANTED

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

TRY AN ADD in this department to sell that good equipment which you no longer need. Our want ads do the business.

CASH for extracted honey, white and amber, in 10-pound cans.
Thomas Lang,
1572 N. Halsted St., Chicago, Ill.

WANTED—Samples of honey from the different plants for our office collection. We will pay for the honey and send a parcel post can for mailing. Samples to be of value should be from one kind of flowers only and unmixed with honey from other sources, as nearly as possible. A pint will be sufficient for each kind, but we wish to secure samples of the same kind of honey from several widely separated localities.
American Bee Journal, Hamilton, Ill.

WANTED—December, 1917, and January, 1918 numbers of the American Bee Journal. Will pay 10 cents per copy.
American Bee Journal, Hamilton, Ill.

WANTED—Foundation Machine. State size, kind, condition, when bought new, and price asked.
Grand Haven Pattern Works,
Grand Haven, Mich.

EXCHANGE for bees, a piece of property 200 ft. front, 150 deep, located in a suburb of Jacksonville, Fla. A fine building location, shaded with large live oak trees and a beautiful garden spot, valued at $1,800; can consider a good exchange on good healthy bees.
Ad. Schmidt,R No. 1, Two Rivers. Wis.

WILL PAY CASH or give $48 incubator for honey extractor, or repeating shotgun.
Lorenzo Clark, Winona, Minn.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

## SUPPLIES

FOR SALE—200 $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{7}{8}$ beeway supers for ten-frame hives; nailed, not painted; brand new; complete with sections, separators, etc., a a very low price. Write
L. W. Mundhenke, E. Dubuque, Ill.

FOR SALE BARGAINS—The following shopworn goods in good condition:
5 10-frame dove. bodies with frames, at 90c each.
35 10-frame dove. bottoms, at 35c each.
30 10-frame dove. metal covers at 78c each.
5 one-story 8-frame Wisconsin hives at $1.67 each.
30 10-frame Wisconsin supers at 59c each.
3,500 $4\frac{1}{4}$x$1\frac{7}{8}$ 2-side sections, per M $6.30.
10 5-gallon round jacketed cans at 65c each.

Hives and supers are packed in crates of 5, and sections in crates of 500.
Dadant & Sons, Hamilton, Ill.

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

FOR SALE—100 three-story 10-frame colonies, mostly 1918 Berry queens, Root hives, metal tops, wired frames; your choice from about 130 colonies; can furnish good location for 1919; alfalfa, sweet clover and heartsease.
Harry A. Huff, Chapman, Kans.

FOR SALE—125 10-frame shallow supers (Root's goods), free from disease; power circular saw and 2 horse power gasoline engine.
E. R. Gooch.
Farmerville, Texas.

FOR SALE— Cheap, a new electric motor, just right for honey house or work shop; 60 cycles, 1-phase, 110 volts, 12 amp.; 1 horsepower constant duty. Inquire of H. M. Leach & Sons, Hiram, Ohio.

FOR SALE—38 Danzenbaker shallow extracting supers at $1 apiece, with drawn combs 8-frame size; 50 comb-honey supers, 8-frame size, part with drawn comb and the rest full sheets of foundation; hand-made, painted white, at 60c apiece; 25 10-frame size comb-honey supers, part dovetailed and the rest hand-made, at 35c apiece. If party takes them all, empty of sections.
James D. Benson, Juda, Wis.

FOR SALE—At a bargain: 200 8-frame hive-bodies; 150 bottoms, 150 covers, 110 queen excluders and 25 lbs. Dadant's extra thin foundation. Write for prices.
F. E. Matzke, Juda, Wis.

FOR SALE—1000 Standard bee hives in flat 8 and 10-frame sizes; supers with sections; full depth and shallow extracting frames. Entire lot new and strictly first-class. I will sell in large or small quantities at low prices.
J. O. Hallman, Helena, Ga.

## FOR SALE

FOR SALE—Cowan extractor and knife; neither used; first $20 takes both.
Chris Smith, Glenwood, Mo.

OUR PRINTING SERVICE is unexcelled. If you want labels, stationery or circulars, write for samples and prices.
American Bee Journal, Hamilton, Ill.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

FOR SALE—A nice little cotton farm, 60 acres; a good location for a beeman. Price, $1,200; $650 cash, balance on 5 years' time, 8 per cent interest.
Joe. J. Widmer,
R. 6, Box 107-a, Franklin, Texas.

FOR SALE—One No. 15 Cowan two-frame reversible extractor. This extractor was damaged in shipment, the can being bent. It has been straightened, and for all practical purposes is as good as new, but we cannot sell it for a new machcine. This extractor sells regularly at $35. First check for $20 gets this machine.
Dadant & Sons, Hamilton, Ill.

FOR SALE—Barnes saw, two-frame extractor, hives and extracting supers in flat, at a bargain; cash or honey.
The Liberty Press, Box 224, Shenandoah, Ia.

SONG—"The Pl of the Bee," or "The Honeybee Doing Its Bit." A song for the children as well as for the grown-ups. Sent to any address on receipt of 15 cents.
The Cutting Publishing Co.,
910 Merchants Bank Bldg., Indianapolis, Ind.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

## SITUATIONS

WANTED—Two young women want work in modern apiary near Los Angeles or Colorado. Experienced one can begin in March, the other June 15.
M. P. Sturdevant, Gooding, Idaho.

WANTED—Men of energy and character, clean habits, as helpers in our ten apiaries; over 1,000 colonies; 1918 crop over 100,000 pounds; best chance to learn; need one experienced man and students. Write immediately, giving age, height, weight, experience references and wages, *all in first letter.*
E. F. Atwater, Meridian, Idaho.

# The Domestic Beekeeper

PUBLISHED for the honey producer, by a honey producer. Every honey producer should know and subscribe for the *Domestic Beekeeper.* The *Domestic Beekeeper* will help you to produce a crop of honey, when harvested it will help you to dispose of it to a good advantage. Thousands of dollars have been saved beekeepers by following the advice of the *Domestic Beekeeper* on the sale of honey. If you have received less than 25c per pound, in 60-pound cans for your best 1918 crop of extracted honey, you are likely not a subscriber to the *Domestic Beekeeper,* or, have not followed the advice of the editor. Isn't it about time that you got out of that "rut" and sell your honey to a better advantage? The *Domestic Beekeeper* for 1919 will advise you from month to month what the Jobber is selling for and instruct you how to secure *his* price for your product, which is usually two to three cents per pound more than *he* will pay you. Get next to this better way of selling before your 1919 crop is ready for the market, by subscribing for the *Domestic Beekeeper* at once.

From many kind letters received, we will submit three late ones which will give the reader a fair idea of what our subscribers think of the *Domestic Beekeeper.*

Remember that it does not cost *Domestic Beekeeper* subscribers a cent to sell their honey to a good advantage, as we advertise it for them free of cost.

Why not every one of the readers of the *American Bee Journal* dig up a dollar and send it in at once and secure the twelve numbers of the *Domestic Beekeeper.*

The three letters referred to above follow:

LIBERTY CENTER, OHIO, November 12, 1918.

The *Domestic Beekeeper:* I have for sale sixteen 60-pound cans of clover honey that you may list in your free list of those having honey for sale. I take this opportunity to thank you for holding my last year's crop.

I think the late W. Z. Hutchinson and yourself have done a good many more kind acts to beekeepers than any other publication I know of. I expect to read your *Domestic Beekeeper* as long as I keep bees and can dig up the price. I surely appreciate your kindness.

S. A. PALMER.

CONTINENTAL, OHIO, October 31, 1918.

The *Domestic Beekeeper:* Please discontinue my name in your honey for sale column, for I am all sold out and am returning checks every day. Wish I could have filled all the orders which came, as they surely came with a rush, and one large order by telegraph, which was filled the next day. Your journal is surely the best honey market journal in the whole country, as it surely keeps tab on the market. Had I seen the October number before naming a price, would have asked 27c, and am sure it would have all gone soon at that price, as I could have sold three times as much at the 25c mark.

Enclosed please find a dollar for 1919 subscription to the *Domestic,* and thanks for your valued help. JUDSON A. JONES.

BAGNALL, MICHIGAN, November 11, 1918.

The *Domestic Beekeeper:* Please discontinue my name in your free column of those having honey for sale, as I am all sold out. Sold my white and buckwheat extracted in 60-pound cans f. o. b. here at 25c per pound. Thanking you for past favors, I remain,

C. J. FREEMAN.

**Send in your dollar at once to the DOMESTIC BEEKEEPER, Northstar, Michigan, for your 1919 subscription.**

# A PATRIOTIC BEEKEEPER

## *Will Heed Our Government's Plea to Keep More Bees and Keep Them Better*

To do this it is essential to get your supplies now and do all preparatory work during the winter months, then spend your time next summer *Producing Honey.*

The profit is worth the effort. Besides, you can save money by ordering now. Get our prices and early order cash discounts.

**MADE RIGHT**
**BEE SUPPLIES**
*Quality ... Service*

# THE KRETCHMER MFG. COMPANY

*DEPARTMENT A*

301 Eleventh Avenue
Council Bluffs, Iowa

# Crop Report and Market Condition

Compiled by M. G. Dadant

For our January report, which will likely be the last one of any length for a few months, we asked the following questions of reporters:

1. Have you any honey left on hand unsold; if so, how much and at what price are you holding it?
2. How is the honey moving and what are the prices?
3. In what shape did your bees go into winter quarters?
4. What is the outlook, pasturage, for next year?
5. How many bees do you expect to have in 1919, compared to 1918? Do you expect to make much increase?

### HONEY ON HAND

A striking characteristic of answers to this question is that there is relatively little honey left in the hands of the producers, and what is left is generally being held to be sold out piecemeal to the local markets. Some of the lots on hand and prices expected wholesale are as follows:

1,500 pounds Connecticut extracted at 30 cents.
One ton Kentucky at 25 cents.
12 barrels Alabama at 25 cents.
12,000 pounds Colorado at 23 cents.
240 gallons Louisiana at 20 cents.
18,000 pounds Michigan at 27 cents.
12,000 pounds Colorado at 25 cents.
5,000 pounds Colorado at 27 cents.
75 cases Utah at $5.00.
10,000 pounds California amber at 22 cents.
1,200 pounds California white at 24 cents.

It is evident from these reports that practically all beekeepers were able to get satisfactory prices for their honey. In fact, very probably the dealers are well stocked up with honey and wondering just what the market will do.

The fact that the War Trade Board has removed the restrictions on honey imports, lets in large quantities of Cuban and West Indian honey which has been seeking a market.

This has had an especially bad effect, since it has been very hard to export honey as yet, owing to the restrictions of the same War Trade Board. But we have just received a wire (Dec. 19) from the Board in answer to ours, stating that all restrictions on honey export are removed December 20, and that after that date honey may be shipped to Canada, Great Britain, France, Italy, or their colonies without individual export license.

### MOVEMENT OF HONEY

In the local markets honey is going very well, where the beekeeper has any to furnish. In fact, the local markets are not being furnished to any extent except as honey is sent in by the big bottlers.

In the larger markets and with wholesalers the demand seems to be slack. This is mostly due to the signing of the armistice; and also to the shipping in of West Indian honey in competition with that of the States.

Foreign markets are still bare of honey and the demand good at high prices, so that in the course of a few weeks, when shipping becomes easier, there should be no trouble in getting satisfactory prices by means of exporting. There is no doubt a feeling of uneasiness on the part of the jobber as to just what the market will do, but we do not see how prices can drop very much before the next crop comes in, as there is such a small amount left in the hands of the producer. Our idea is that the market will stiffen just as soon as shipping space becomes a little more easily available.

### SHAPE OF BEES FOR WINTER

In reading the reports coming in I have been struck with the number stating that their bees went into winter rather light in stores, especially in the eastern and central States. This is due to the fact that the fall crop was small in most localities, and to the difficulty of getting sugar. In most cases there is combined with this a shortage of bees in the hives, also due to the same cause. This may mean rather severe losses during the winter. Starvation will especially be a danger, since bees are apt to use more honey in such a mild winter as we are having so far.

The sugar restrictions are now removed, and it behooves every beekeeper who has colonies lacking stores to make the loss good either as early in spring as possible, or yet this winter by feeding sugar candy (properly made).

Most reports indicate that bees went into winter quarters in good shape, a few from the northwest also indicating light colonies.

### PASTURAGE OUTLOOK

Pasturage outlook is better than a year ago, a comparison of reports for the two years shows. It is early to base conclusions on pasturage outlook now, especially in the western States. But the east and most of the central States have had good fall rains, which has put clover in fair to good condition to survive the winter.

The prospects in California seem to be better than a year ago. There have been a number of early fall rains and the weather is seasonable, all tending to a better outlook for the honey plants.

It is in Texas, however, that prospects show the greatest improvement over a year ago. Bountiful fall rains have not only made good fall flows in many localities, but they have started the vegetation throughout the State and beekeepers are hoping for a return to normal conditions after some of the worst seasons they have ever experienced. One or two reporters state that it will take two or three years to replace all the perennial plants and shrubs which have been killed out by the drought of the bad seasons.

### BEES IN 1919

Practically all losses of the winter of 1917-18 have been made good by increase during the past summer, except in the State of Texas, where it will take another summer to place them back to where they were before the bad years came, and this deals alone with the commercial beekeepers. It will take much longer than this to make up for the losses on the part of the smaller and amateur beekeeper.

The whole country over, there are, without doubt, more bees than a year ago.

Nearly all reports are to the effect that there will be some increase made during the coming spring, this increase ranging from just enough to make up losses, to 100 per cent, the most of the reporters stating that they would make from 25 to 50 per cent increase.

The largest beekeeper in the southwest expects to increase his holdings from 7,000 to 10,000 colonies, while another in the mountain States of the west will increase from 5,000 to 7,000 colonies. The latter beekeeper, by the way, raises his own queens, having a queen breeder whom he pays at the rate of $8 a day to do the work.

### BEES AND QUEENS FOR NEXT YEAR

With very few exceptions, beekeepers have very little doubt but that they will be able to secure all the bees and queens they will require. Several have made contracts or placed orders in advance for their season's requirements. Many more are increasing solely by division, while others do not expect to have to requeen till late sumer, when the demand for queens is not so great.

## KEEP INFORMED ON TEXAS CONDITIONS

The **Beekeepers' Item,** a monthly paper edited by Mr. Louis H. Scholl, well known to our older readers, and an authority, has many interesting items which should interest beekeepers, not only in the Southwest, but throughout our country.

In order to allow you to become acquainted with this paper, we offer a special combination of **Beekeepers' Item** one year with **American Bee Journal** for only $1.25.

Or, if you desire, we can send you your choice of **First Lessons in Beekeeping,** or **Practical Queen Rearing** with the **Item** one year for only $1.25.

**Send all orders to**

**AMERICAN BEE JOURNAL**
**HAMILTON, ILL.**

## PAINT WITHOUT OIL

**Remarkable Discovery That Cuts Down the Cost of Painting Seventy-Five Per Cent**

**A Free Trial Package is Mailed to Everyone Who Writes**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

Write for Price List and Boooklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

BUY

## THE FAMOUS DAVIS GOLDENS

**And get big yields from gentle bees. Write for Circular and Price List.**

BEN G. DAVIS,
Spring Hill, Tennessee.

## Important for New York, Pennsylvania and New England Beekeepers

We carry a complete stock of Lewis Beeware and Dadant's Foundation, Root's Extractors, Bingham Smokers and Honey Knives, Tin Cans and 5 and 10-pound Pails, and a very complete line of Glass Honey Jars.

As we are located on the Main Trunk Lines, we can give you prompt service; however, order your supplies early, as transportation is slow at its best. Send us that list and we will quote you, giving you the benefit of our early order discounts.

**THE DEROY TAYLOR CO.**
**Newark : Wayne County : New York**

## A HOLIDAY SUGGESTION

## "Our Backdoor Neighbors"

By FRANK C. PELLETT
Author "Productive Beekeeping" and "Practical Queen Rearing"

A delightful account of the author's personal experiences with wild creatures. Every illustration from life.

**Price postpaid, $1.50; with "Productive Beekeeping," both, $3. With "Practical Queen Rearing," both, $2.25; all three, $3.50.**

## "The Flower and The Bee"

By JOHN H. LOVELL

A popular exposition for beekeepers and flower lovers of the far-reaching subject of pollination in general. With many illustrations.

**Price $2. With "Our Backdoor Neigbors," both, $3.25.**

AMERICAN BEE JOURNAL, Hamilton, Ill.

Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**

**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

PROFITABLE HONEY PRODUCTION
WITHOUT MODERN EQUIPMENT IS IMPOSSIBLE

**WESTERN HONEY PRODUCERS**
1929-1931 Fourth Street
SIOUX CITY, IOWA

Have at your command a large supply of standard hives, sections, comb foundation, extractors, etc.

Place specifications now for what you will need the coming season. Be ready for business when your honey flow comes.

"GRIGGS SAVES YOU FREIGHT"
TOLEDO
BEE SUPPLIES
FOR NEXT SEASON'S USE

Place your order now and get the large early order discount, besides avoiding the spring congestion and delays which always come.

1919 Season will be the largest in history, owing to high prices received for honey, and all factories will be taxed to limit. Already our December orders are as heavy as last June. Can we count on your order? A list of goods wanted will bring back prices at once.

Better send your name for our new catalogue when it is out.

**Honey and Beeswax** always wanted. Cash or in trade.

**S. J. GRIGGS & COMPANY**
TOLEDO, OHIO
Dept. 24
"GRIGGS SAVES YOU FREIGHT"

**LEUTZINGER & LANE**
Wholesale Dealers and Shippers of
Extracted and Comb Honey

Cor. Drumm and Oregon Sts. SAN FRANCISCO, CALIFORNIA

**Western Beekeepers Attention**

We pay spot cash for Honey, and do not handle on commission. Write us what you have, or expect to have, to sell. We buy any quantity.

**Mr. Beekeeper**

You should have nice stationery—especially when it costs no more to have a nice, neat job, than a poor one.

Letterheads and envelopes, and price lists are our specialty, and we have appropriate cuts for illustrating, if desired.

Write to us for our catalog of stationery and honey labels. It is free.

If you want anything in the printed line, we can supply you. Ask for prices.

AMERICAN BEE JOURNAL
Hamilton, Illinois

**BEES**

We furnish full colonies of bees in chaff or single-walled hives, nucleus colonies or bees by the pound in season. Prices on application.

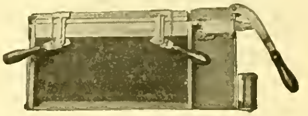
Ten-ounce screw-capped jars, two-gross crates, at $7.50 a gross.

**I. J. STRINGHAM**
Glen Cove .. New York

**Don't stop advertising.**
because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

EAT HONEY
NATURE'S OWN SWEET—AIDS DIGESTION

Price of 1,000 gummed, 35c.
American Bee Journal Hamilton, Illinois



PAT. APPLIED FOR
C. O. BRUNO NAILING DEVICE
*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.
Complete directions for operating are furnished with each device.
Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

# SOUTHERN HEADQUARTERS

## Italian Bees and Queens

| | |
|---|---|
| 1 lb. bees, no queen | $2.25 |
| 2 lbs. bees, no queen | 4.00 |

For 50 or more, 20c less on each swarm. These go express charges collect, at buyer's risk.

If wanted by parcel post, add 50c for 1-lb and 75c for 2-lb. for guaranteed safe arrival to your postoffice.

Shipper reserves right to demand return of empty cages at his expense.

| | |
|---|---|
| 1 untested Italian queen | $ 1.25 |
| 12 untested Italian queens | 13.25 |
| 50 or more, each | 1.00 |
| Tested queen | 2.00 |

No disease ever been in my vicinity.

**W. D. ACHORD, Fitzpatrick, Alabama**

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

# WILL SELL AT WHOLESALE

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF BEE SUPPLIES

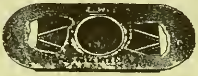
ALL BOXED, ready to ship at once — thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds — 100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers. Send for a price list. **I can save you money.**

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY



**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

# ORDER BEE SUPPLIES EARLY

We can supply you with the best of everything — Dovetailed Hives, Supers, Frames, Honey Sections and Comb Foundation.

Be prepared for the coming season. Our catalogue ready January 10. Send for it.

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

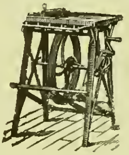
# BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and $8.00; select tested, $1.25.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

# BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# Be Your Own Judge

NO MATTER what the manufacturer **Claims,** the final decision as to whose goods you buy is based upon the quality of the goods you have already purchased. You know better than any one else in the world whether they are satisfactory or not. Satisfaction, together with service, means repeat orders.

**ROOT'S COMB FOUNDATION** is sold to you on this basis. It isn't merely the first order that we want—it's the repeat orders that we are looking for. We are willing that our comb foundation be compared to any other make on the market. Then we want you to **be your own judge.**

**ROOT'S FOUNDATION** is made by the well-known Root-Weed Process—the same as all other good makes of foundation. But — Being the originators of this process, as well as the sole manufacturers of the machinery which rolls out the foundation, we have the best facilities as well as the most experienced workmen for making this famous brand of goods.

**THE WAX WE USE** is selected from large stocks. Only the best-flavored and lightest-colored is used for foundation. Inferior grades are disposed of through the many commercial channels open to us.

**Some Makers Claim,** as a talking point, that they use no acid in refining their wax. After repeated tests, and on the advice of the most competent chemists, we have found that nothing will cleanse, purify and sweeten the wax like melting it in boiling water and adding a very small amount—1-18th of one per cent—of sulphuric acid. After the refining process is complete, and the acid washed out (as soap is rinsed out of clothes after being washed) tests show that **not a trace of acid remains.**

**The A. I. ROOT CO., Medina, O.**

New York
Chicago
Philadelphia

Indianapolis
St. Paul

Los Angeles
Norfolk
San Francisco

---

# TIME TO STUDY WOODS

CYPRESS "THE WOOD ETERNAL"

## For the Bee Man This is the Period "Between Hay and Grass"

CYPRESS LASTS PRACTICALLY FOREVER

While waiting for the honey-season to begin, suppose you investigate the relative values of different commercial woods. Few business undertakings call for more exacting care on the part of the buyer than getting the best lumber for the bee-man's use. In many respects bee-hive construction is like Greenhouse construction—both are most trying on the material used.

Cypress is the only wood that "stands up" in Greenhouse work. It resists the rot influences that infest the Greenhouse. No other wood is so thoroughly certified for this use as is Cypress.

If Cypress will "stand the racket" in Greenhouse construction it certainly will do the right thing by you in beekeeping.

## READ CYPRESS BOOKS

Those who would get accurate information regarding Cypress wood and its extraordinary power to resist rot influences should provide themselves with copies of the Cypress Pocket Library. There are 43 volumes, each authentic and authoritative. **Write us** and tell us what subject you are interested in and will send you the appropriate booklet. We especially suggest you **write for Vol. 1,** with the unabridged U. S. Govt. Rept. on Cypress, "The Wood Eternal," that is a **buy** because it lasts so like—well, it lasts and lasts and lasts and lasts and lasts.

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA. 1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

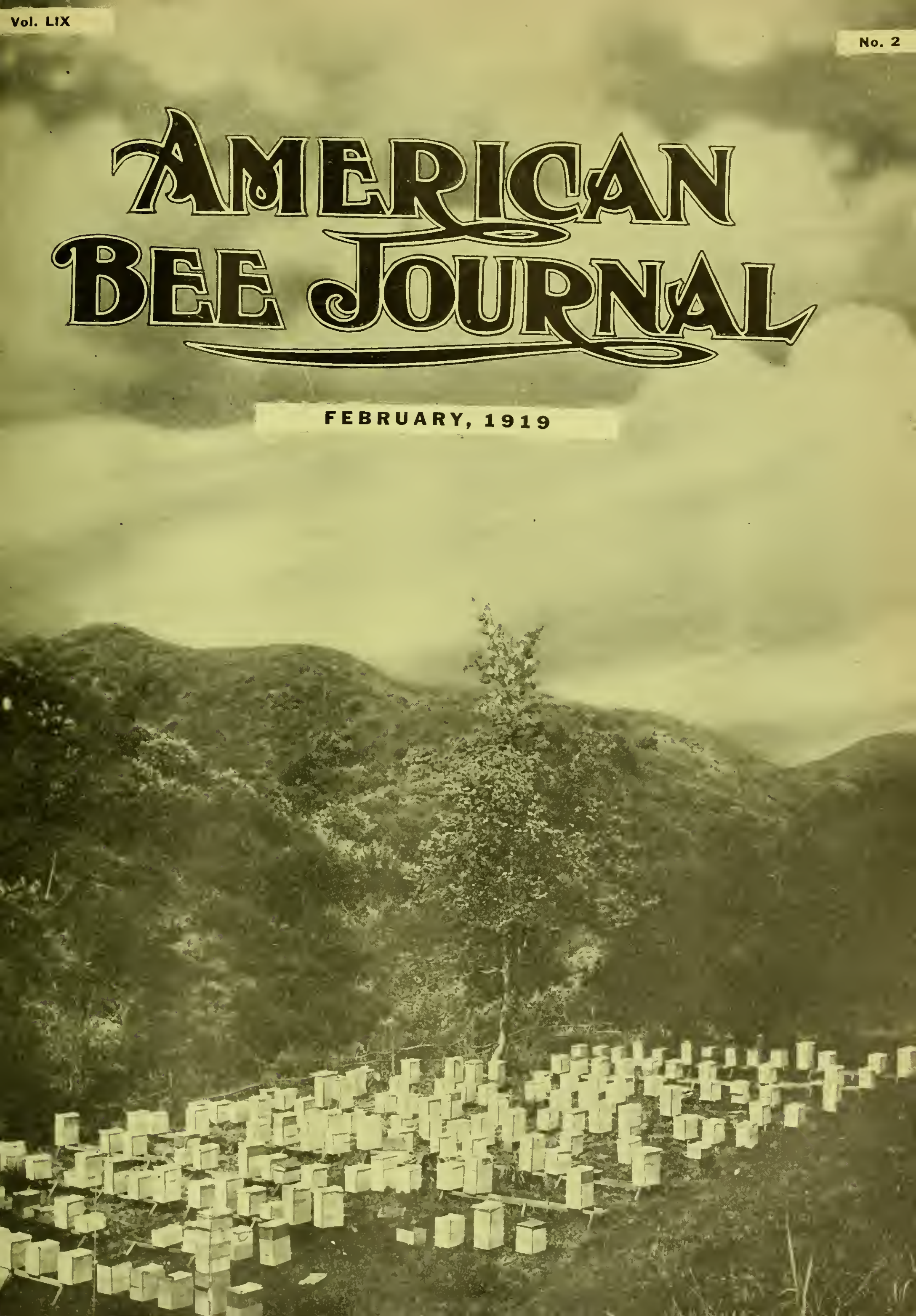
FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

Vol. LIX

No. 2

# AMERICAN BEE JOURNAL

FEBRUARY, 1919



# Ready Money for Your Honey

**SHIP IT NOW**

If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

**PROMPT REMITTANCE**

Remittance sent by return mail for every shipment we receive. Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

**OLD COMBS and CAPPINGS**

Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED---COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

## Our New Home

We are now located at Pearl and Walnut Sts., and have the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

## We Sell Lewis' Beeware

"Lewis" stands for the highest quality Beeware known. It is safe and reliable. "Made like furniture." We are glad to fulfill your needs.

**SEND FOR OUR 1918 BEE CATALOG**

**DADANT'S FAMOUS FOUNDATION**

**ROOT'S SMOKERS and EXTRACTORS**

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
CINCINNATI, OHIO

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**

Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**

Mailing weight, two pounds

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**

Mailing weight, one pound

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price $1.50**

Mailing weight, three pounds

ALL FOR SALE BY

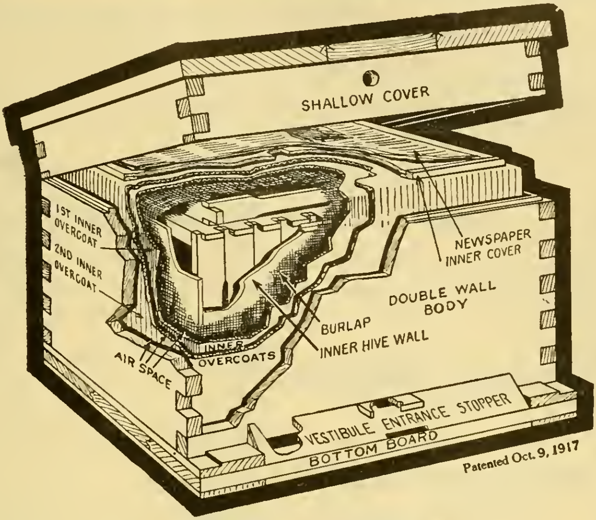
**AMERICAN BEE JOURNAL**

HAMILTON, ILLINOIS

# WINTER PROBLEM SOLVED

BY

# THE HIVE WITH AN INNER OVERCOAT



**PROTECTION HIVE**

Showing how insulation is arranged when no winter rim or chaff cushion is used. A piece of burlap, bagging or similar material is telescoped down over the brood-nest, between the inner and outer walls with the Inner Overcoats. The inner cover is laid bottom side up over the Inner Overcoats, providing a dead air space over them. Added insulation is provided by laying a piece of newspaper on top of the board.

For your information and to be convinced of the efficiency of this hive, send for a sample. For a limited time one sample hive will be sent set up and equipped as per this illustration, at the

**Special Price of $5.00**

Our new illustrated catalog for the season of 1919 and a special circular of the Woodman Protection Hive, showing 10 large illustrations will be sent upon request. Send us a list of your requirements and let us figure with you on your wants for the coming season.

**A. G. WOODMAN CO., Grand Rapids, Mich., U. S. A.**

## PROFITABLE HONEY PRODUCTION

WITHOUT MODERN EQUIPMENT IS IMPOSSIBLE

**WESTERN HONEY PRODUCERS**

1929-1931 FOURTH STREET
SIOUX CITY, IOWA

Have at your command a large supply of standard hives, sections, comb foundation, extractors, etc.

Place specifications now for what you will need the coming season. Be ready for business when your honey flow comes.

"falcon" "falcon"

# IT MEANS

**Simply This:** We have got to "carry on" with all our might and with more "pep" than ever before. You are urgently requested to prepare to do your part when the time comes to "carry in" the enormous honey crop for which we must prepare.

## PREPARE IN THE RIGHT WAY BY ORDERING EARLY

This will save time, money and honey, and will be gratifying to your ambition to help your country and fellow citizens. Let them have a good quality of honey and lots of it. **You Can Do It.** Get the goods that you are going to need and have them ready for the beginning of the season. To make this more of a saving to you, we are giving an **early order cash discount of 10% for shipment prior to December 1, 1918.**

**Use only the goods that are tested and known to be the best and most reliable; therefore, "falcon" goods will give the best results. Our goods are made by experienced and interested workers. This is the reason we are known in every land.**

SEND THAT LIST OF REQUIREMENTS TO US AT ONCE FOR PRICES

Catalog and "Simplified Beekeeping" on request

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Best Beehives Come From**

---

# The Diamond Match Co.

(APIARY DEPT.)

MANUFACTURERS OF

## Beekeepers' Supplies

**CHICO, CAL., U. S. A.**

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**

**Apiary Department** **CHICO, CAL., U. S. A.**

---

# SUPERIOR FOUNDATION

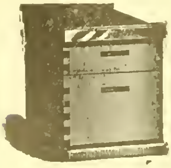
## Does the Hen that Cackles Loudest Lay the Largest Egg?

Any manufacturer of Weed Process Foundation that claims the **"bees take to theirs first"** either draws upon his own imagination, or else refers to specific instances which are the natural result of unequal conditions. Our exhaustive tests prove that the freshness of the foundation, the weight of the sheets, the nature of the honey flow, etc., are the determining factors. Exactly the same machinery, the same process, and the same materials are used by all manufacturers of Weed Process Foundation.

We specialize in the manufacture of foundation, and guarantee that our **SUPERIOR FOUNDATION** is unexcelled in quality by any other make. Let your own bees prove this to your entire satisfaction. If your dealer cannot supply you, order direct from us.

**SUPERIOR HONEY CO., OGDEN, UTAH**

---



EARLY ORDER DISCOUNTS WILL

## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

---

# FRENCH

**ASPARAGUS BEANS** bear GIGANTIC pods **30** inches long. Produce abundantly anywhere. Wonderfully delicious—rare flavor entirely stringless. Bring big market prices. A century old Oriental delicacy that has been long grown and prized in the best American and French gardens. A valuable companion crop for beekeepers. Free Bulletin if Bee Journal is mentioned. Pkt. (about 300 seeds), $1, postpaid. **J. A. & B. LINCOLN.** Growers and Importers, 39 South La Salle Street, Chicago, Ill.

# Don't Take Our Word

For the claims we make in regard to DADANT'S FOUNDATION. Ask the beekeepers who have tried it side by side with other makes and who KNOW its value by the *results*.

**READ THIS**

> *Dadant & Sons, Hamilton, Ill.*
>
> *Gentlemen: Yours is certainly the best foundation by far, and if there is an honest advertisement in the American Bee Journal, it is yours on the 401st page of the December issue, as I found my bees to be the same as A. N. Norton's, of New Mexico. I used foundation from ————, and from ————, and yours all last summer, and the bees drew out yours and worked more quickly on it than on either of the other two brands. The only difference that I could see was that there was a little difference in color. There must be something in it that the bees can tell better than we can.*
>
> *Yours truly,*
>
> *ELMER KOMMER.*
>
> *Woodhull, Ill., Dec. 23, 1918.*

**ALSO THIS ONE**

> *Dadant & Sons, Hamilton, Ill.*
>
> *Gentlemen: At what price will you furnish me 1,000 pounds of Medium Brood Foundation, in sheets to fit the Hoffman frames, packed in cartons and also packed 25 pounds in a box?*
>
> *One of the reasons I have for asking the price in the above paragraph is that I have used a great deal of your foundation, as well as that of other manufacturers, and the bees certainly work on yours quicker than on others, and possibly I might prefer to sell my beeswax to you, or to others and buy your product, even if at some extra expense. I have about 40,000 drawn-out combs from foundation sheets and have accumulated quite a bit of information regarding the drawing out of full sheets of Comb Foundation, etc. An early reply is requested.*
>
> *Yours very truly,*
>
> *ELTON WARNER.*
>
> *Asheville, N. C., Dec. 27, 1918.*

Mr. Warner is a very extensive beekeeper, having large apiaries on the island of Porto Rico. Certainly in drawing out 40,000 combs one would have a fine opportunity to note any preference of the bees for a certain brand of foundation.

These testimonials and many others come to us *unsolicited*. They prove to us that DADANT'S FOUNDATION deserves the prestige that it enjoys. Insist on DADANT'S FOUNDATION. If you cannot get it of your dealer, then order of us.

**DADANT & SONS** HAMILTON ILLINOIS

# *ANTICIPATE*
# *Your 1919 Bee Requirements NOW!*

HELP US CO-OPERATE WITH THE GOVERNMENT BY ORDERING YOUR BEE SUPPLIES FOR NEXT SEASON NOW!

Transportation conditions may not permit of prompt shipments later on. Now, of all times, the Beekeeper **should not put off until tomorrow what he can do today.** You owe it to your country and to yourself to prepare at once for the gathering of the nineteen nineteen crop.

**Have You Enough Hives?**
**Have You Enough Supers?**
**Have You Enough Frames?**
**Have You Enough Sections?**

And have you enough of the rest of the things you will need?

THE LEWIS FACTORY IS NOW OPERATING NIGHT AND DAY TO TAKE CARE OF THE SEASON'S DEMANDS

Help us while we are helping you. Place your orders now, so manufacturers and dealers can help their country---your country, you and themselves, by preparing now for your needs.

THE NEW LEWIS CATALOG
will be out this month

## G. B. LEWIS COMPANY

*Manufacturers of Beesware*
*WATERTON, WISCONSIN*

AMERICAN
BEE JOURNAL

VOL. LIX—NO. 2 HAMILTON, ILL., FEBRUARY, 1919 MONTHLY, $1.00 A YEAR

# THE CALIFORNIA SHORT COURSES

## An Account of the First Extensive Series of Short Courses Designed for the Commercial Honey Producer

THE State University of California, in co-operation with the U. S. Department of Agriculture, has recently undertaken a novel experiment. The success of the enterprise is a source of gratification to all concerned, and it is doubtful if the most loyal booster was prepared for the enthusiasm which developed.

A short course in beekeeping is not a new thing, in fact the writer has attended several of them in various places. The California short courses differed from others previously held, in that they were planned entirely for the benefit of commercial honey producers instead of beginners. Every other course so far held, as far as the writer has observed, has been elementary in its nature and designed especially for the novice. There seemed to be some doubt as to whether the attendance would justify a course designed for the experienced beekeeper. In order to place the course within reach of all California beekeepers, a series of four were decided upon, to be held in widely separated locations, each a full week in duration.

The first was at San Diego, in the extreme southern part of the State, beginning on November 25. This was followed by one at the University farm, at Davis, in northern California, beginning December 2. The next was at Visalia, about 200 miles south of Davis, held the week beginning December 9. The fourth and last was to have been held at Riverside, in the heart of the orange belt, but was prevented by a quarantine established by the board of health to prevent the spread of influenza. Since more extensive honey producers live within reach of Riverside than any other point, it was confidently expected that the Riverside meeting would be the biggest of all—the grand climax of the series. The quarantine came as a bitter disappointment, not only to many beekeepers who expected to attend, but also to those who had been responsible for the series, and members of the staff, who looked forward to the opportunity of meeting the beemen at that place.

**Another Short Course for Beekeepers**

As we go to press we have received a telegram from Mr. Demuth asking us to announce that there will be a short course at Cornell University, Ithaca, N. Y., similar to the ones just closed in California. The dates given for the New York course are February 24 to March 1.

We hope that the University will be able to advertise this course widely among Eastern beekeepers and that they will understand that the course is designed for commercial beekeepers rather than for beginners.

Phillips didn't know the camera was loaded.

Considering the fact that an epidemic of influenza was raging all over the country, and that the ban was only lifted the week previous to the San Diego meeting and clamped down again the last day, it seemed very fortunate that even three of the courses could be held. In view of the number that undoubtedly remained at home because of the epidemic, the attendance was very gratifying. At San Diego there were something like 100 in constant attendance, with a total attendance of probably 150 persons.

### The Course

The course given was the same at all of the places, and the same program was followed from beginning to end, with slight variation. Instead of starting out with elementary instruction in such matters as hive construction and methods of manipulation, it was assumed that those in attendance were beekeepers of experience, familiar with hives and other equipment, and understood fully the meaning of such words as "top-bars," "swarms," "hive-stands," and "propolis."

The outline was made at Washington by Dr. Phillips and Mr. Demuth, who with Professor Coleman of the University, were the principal speakers. The whole purpose of the course was to lay a thorough groundwork of fundamentals and then apply these to beekeeping practice.

With many beekeepers, what they have learned is a matter of experience. Many of us learned manipulations long before we understood the reasons for them. By considering the first activities of the bees themselves, we can better understand why a particular manipulation is necessary to secure a desired result. At the beginning, the work was divided into two parts, "Fundamentals of bee behavior outside the active season" and "Fundamentals of bee behavior during the active season." The beekeepers' year was thus divided into two parts, the active season, and winter or the inactive season. Following the presentation of the bee activities during these two periods, fundamentals of practice were taken up in similar manner, and the reasons for manipulations were pointed out because of the nature of certain activities of the insects.

One day was devoted to the consideration of the subject of disease, and the same general method of handling the subject was applied. Many came with a very definite idea of the nature of the course, and some were skeptical as to whether it would be worth while. Others seemed to expect something in the nature of a beekeepers' convention.

It was a school, rather than a beeman's meeting or convention, and there was but little time for the usual social activities common to conventions. The sessions started at 9 a. m. and continued till noon. After a brief recess for the noon luncheon the grind was resumed till time to eat again. The evening sessions were attended, in spite of the hard day, and there was no lack of interest, even up to the close of the last session. Note books were much in evidence, and many went away prepared to review the work after returning to their homes.

One very pleasing feature was that the more extensive beekeepers were the most enthusiastic about the course, and most anxious to see it repeated. Many were present who own from 600 to 2,000 colonies of bees. Several had sold honey crops the past season ranging from ten to twenty thousand dollars in value. When men of this kind stick from the sound of the first gong until the last session is over, it is good evidence that the course is extremely practical, and when such men ask that it be repeated again next year, there need be no fear that the instructors have wasted their time. There were a number of beginners present and they stuck heroically, although much of the time they did not understand fully what was being said. They absorbed some of the enthusiasm of the old timers and picked up pointers here and there, which were sufficient to sustain their interest to the end. A few staid for only a day or two and then disappeared, but most of them remained and expressed themselves as sorry that the course was not longer.

Mendleson in action at the Davis short course.

### The Staff

The greater part of the work was carried on by the men of the U. S. Department and of the University, as would be expected. Others were invited to speak on special topics. Dr. E. F. Phillips, as Government apiculturist, occupied first place on every program. Phillips is a forceful fellow, an easy speaker, and holds his audience without apparent effort.

George S. Demuth, assistant apiculturist, divided the heavy work with Doctor Phillips. Demuth is a practical beekeeper of long experience who went into government service about seven years ago; the opposite, in many ways, of Phillips. The two did some great team work. Each reviewed the work of the other at the end of the course and with nearly every subject one would consider the scientific phase of it while the other made the practical application. It is very fortunate that they are able to supplement each other so nicely. Demuth is an extremely practical man with many years of beekeeping experience. Those who saw him in action during the course were much impressed with the character of his work. Some went so far as to say that he is one of the greatest teachers of beekeeping of the generation.

A third Department man whose name was not announced on the program but who, nevertheless, made an important contribution to the work, is Jay Smith, the well-known Indiana queen breeder who is spending the winter in special extension work for the Department, in the State of California. Mr. Smith gave some very interesting talks on queen rearing.

Mr. George A. Coleman, Apiculturist of the University of California, had general supervision of the work, in addition to giving some extended lectures with special application to California conditions. Mr. Coleman was so unfortunate as to contract the influenza, and was compelled to go to his home before the close of the first course. He managed to get back to appear at Visalia, but it was very apparent that the attack had left him very weak and that he should not have resumed his work.

Mr. M. H. Mendleson, who is one of the best known among the pioneer honey producers of California, was a constant center of interest wherever he went. Having produced as high

Demuth taken unawares.

Manager Justice, of the California Honey Producers' Association, and Charlie Edson, were so busy discussing honey markets that they did not see the camera man.

as one hundred tons of honey in one season, in California, his word carried weight and everybody seemingly wanted to shake his hand and ask him to help with their particular problems.

E. R. Root, the genial editor of Gleanings, gave some interesting history of the development of the beekeeping industry. He appeared on the last day of the course, after the tension was somewhat relaxed. Anecdotes of Langstroth, Heddon and other pioneers furnished an interesting diversion after the heavy grind of fundamental instruction. Of special interest was his account of the controversy over the size of the hive in the early days when Charles Dadant advocated the large hive, while Hutchinson and Heddon went to the other extreme. Mr. Root paid a tribute to the constancy of the advocates of the large hive and was free to admit that a larger brood-chamber than that furnished by a single-story 10-frame hive is necessary for best results.

Frank C. Pellett, associate editor of the American Bee Journal, discussed the subject of bee inspection. As State Inspector for Iowa for a period of five years, he has been through the mill and tried to present the subject from the standpoint of practical protection for the beekeeper. He outlined the difficulty of getting results by the quarantine method, after a disease has been widely distributed. He outlined the difficulties of an inspector and pointed out possible dangers through improper methods of law enforcement. The substitution of educational for police methods was recommended as more likely to secure satisfactory results.

### Sidelights on the Courses

Thanksgiving day came during the San Diego meeting and it was feared that most of the beekeepers would go home to celebrate the day and leave the staff to themselves. Not so, however, for although the attendance was not quite up to the high day, it was very good for every session.

To celebrate the end of the war and to give a grand finale to the training of the boys at the aviation field, a great display of Uncle Sam's flying craft was given one day during the short course; 212 machines were in the air at one time in battle formation. There has probably never been a larger number of airships flying together at any place outside the battle zone. The boys performed all kinds of stunts for the amusement of the crowds watching from below, and not an accident was reported to any of the machines. One youngster frightened scores of people terribly by throwing overboard a suit of overalls. As the garments turned over and over in the air many people thought that they were witnessing the final act in the career of some daring flyer.

Of course it was impossible for any speaker to talk beekeeping in the face of such competition as was offered by the flyers, so the session was adjourned for about an hour during the flight, but was promptly resumed when it was over.

The San Diego short course was wedged in between two "flu" bans by the merest, scantiest possible chance. The ban was raised at the end of one week, the sessions began on Monday and the ban was clamped down again on Friday night at midnight, thus cutting off the final day's sessions. Many had failed to get the word, so gathered outside of the hall for final goodbyes. Since Editor Root had not yet appeared at a regular session, the crowd sat on the steps of the hall and listened in the open air, to the speech which could not be given inside because of the regulation of the board of health.

Doctor Phillips thought that they served us well at San Diego, having raised the "flu" ban for the week, declared a National holiday (Thanksgiving) and given the greatest display of aeroplane activity in the nation's history.

No account of the San Diego meeting is complete without some mention of the hustling County Agent, H. A. Wineland, who presided at the various sessions and to whom much credit should be given for the success of the course. Everybody in the county, whether a beeman, raisin grower or just a plain hobo, seems to be strong for Wineland. He knows everybody and is constantly on the job, no matter whether it is beekeeping, orange growing or rabbit hunting that is under consideration.

It is a long trip from San Diego to Davis, near Sacramento, in northern California. The journey requires nearly 24 hours of travel, and gives one an idea of what a tremendously big State California is.

At both Davis and Visalia, trips were made to nearby apiaries, and part of an afternoon spent with the bees. There were informal discussions of various things of interest to

The Staff

beemen and some demonstrations of pet hobbies.

The limits of space for this article have been reached and the half has not been told. There is no room left for the various incidents by the wayside, the visits to fig orchards and raisin-packing houses, by members of the staff who slipped away with Mr. Hawley; of the way they tricked the writer into sampling fresh ripe olives, of a dandy trip to the orange groves with Mr. Darnell, of the many things of interest to the tenderfoot from the east to California in winter, or of the dinner parties, visits, nor the delightful midnight talkfests by groups of beekeepers who should have been in bed. We hope to find room for some of these things in connection with other articles about California beekeeping, but many must remain untold.

California gave the lie to the oft-repeated excuse by university authorities in many States, when approached by beekeepers asking that educational work be undertaken in beekeeping. They say "There is no demand for work in that line." There has been no opportunity to demonstrate a demand. The California University is to be congratulated upon being the first to offer a comprehensive series of short courses to commercial honey producers. The California beekeepers are to be congratulated upon the magnificent way in which they have taken advantage of the opportunity, thus demonstrating that, for a practical course, there is a real demand. The total attendance of the three meetings was between three and four hundred persons and would have been larger, but many had expected to attend at Riverside, which meeting was cut off. Under normal conditions the total would have probably been above five hundred at the four places.

With so much enthusiasm shown for these courses, we may reasonably expect that other States will offer similar ones, and since these are successful, we hope that Doctor Phillips and his staff will be encouraged to make similar co-operation a permanent policy of the Division of Apiculture.

An outdoor demonstration at one of Oliver Park's apiaries, near Davis, during the short course.

## Force or Education

By Frank C. Pellett

A STUDY of the inspection laws of the various States brings to light some remarkable conditions. At the close of the world war, when the attention of the American people has been called to evils of old world administration, it may not be amiss to examine the tendency of our own country to drift toward autocratic methods of government. In passing laws relating to bee diseases, we have been so frightened by the presence of disease that we have put more power into the hands of the inspector, as far as our business and property are concerned, than it was ever designed that any one individual should hold, under our American institutions. It is a serious question whether we have not gone entirely too far and whether it is not now time to call a halt.

We are living under a constitution which gives to every man the right to be heard and provides that no individual shall be deprived of his property without due process of law. Nevertheless, many States have passed laws which place the property of the beekeeper entirely in the hands of the bee inspector. These laws make the inspector the sole judge as to whether or not disease is present and give him authority, if in his judgment it is necessary, to destroy the property of the beekeeper without restraint. Under such a law, healthy colonies of bees may be destroyed with no protection for the beekeeper. A little study of the situation will make it apparent that the beekeepers have become so aroused over the presence of disease that they have caused the enactment of laws which might easily become a more serious danger than the disease which they are designed to control. Many of these laws go so far as to give the inspector authority to establish a quarantine against the sale of honey from infected areas. The danger of spread of disease through the sale of honey in the ordinary channels is so small as to be negligible, yet is is easily possible for a misguided inspector to ruin the beekeepers in a large territory. In no other department of American activity do we make it possible for one man to judge the merits of a case, assess the penalty and finally execute the sentence.

The time has long passed when quarantine methods were advisable

Group of beekeepers at the San Diago short course.

CAWSTON
OSTRICH FARM
SOUTH PASADENA CAL

Jay Smith on a "Seeing California" excursion.

in dealing with foulbrood. When the disease was confined to a small territory it was reasonable to expect that its spread might be checked by establishing quarantine against infected areas. Now that it is present in probably every State in the Union, little is to be accomplished for one infected State to establish a quarantine against another infected State. There should be laws to govern the movement of diseased apiaries, as a matter of course, but they should be administered in the same way as other laws. Hog cholera is a serious animal disease which the farmers of America have good reason to fear. Yet there is no general provision which makes it the business of a State to examine all the hogs at stated periods and destroy every herd where disease is found, nor yet to give the owner a certain period in which to treat them. Now that cholera is widely spread and generally to be reckoned with, it is thought that the owner's financial interest in the hogs should be sufficient incentive to give the matter his attention.

The writer has had five years' experience as a bee inspector and knows something of the impossibility of getting results under existing laws. In the first place, it is a practical impossibility to examine all the bees in a locality in the thorough manner necessary to establish the presence of disease in every case. If bees are examined in such a manner, there is no time left to give their owner assistance or instruction in dealing with the disease, and the chances are good that, without previous experience, if he tries to treat them, he will only make a bad matter worse and spread the disease still further.

If, instead of coming as a policeman sworn to compel the owner of every diseased colony to cure or kill, the inspector came as a demonstrator to assist the owner in treating his bees, he could be of far greater service. A policeman is only called when you have committed a crime or are suspected of malicious intent. As a consequence, nobody likes to see a policeman about. The poorly-informed beekeeper is immediately resentful when the inspector comes into the apiary and marks the colonies to be treated. If the inspector had no police authority, but came as an educational officer, he would be welcomed and his work would be far more effective.

The question of results has been discussed with many of the most successful inspectors and all have been disappointed in what they have been able to accomplish under these laws. Almost without exception they state that the principal value of their work is in the assistance they have been able to render by instructing the inexperienced in the treatment of disease. This being the case, why not make the office a purely educational one and leave the enforcement of such law as is necessary in the hands of others.

The legislatures are now in session in several States and in some the beekeepers are considering the matter of protection. Let us warn the beemen in these States that they are better without any law at all than they would be with the stringent provisions now on the books of several States. Some States have abandoned the stringent quarantine laws after a trial and other States are considering how to get rid of them. Where new laws are to be passed it is far safer to make a move toward an educational officer rather than toward another policeman.

Probably Morley Pettit, in Ontario, was the first to utilize the apiary demonstration as a means of checking bee diseases. By holding a demonstration in an accessible location, it is possible to reach a large number of persons and to give each one practical instruction in diagnosis and treatment of disease so that he can go home and apply it to his own apiary intelligently.

A quarantine is never effective unless it is thoroughly done, and the money available in any State is seldom sufficient to cover 20 per cent of the territory. What does it profit to burn up one man's bees and leave a similar condition across the fence untouched? While the inspector is examining all the bees in one large apiary and marking those to be treated, he might have given a group of two dozen persons careful instruction in how to inspect their own apiaries and treat their disease.

We can only judge a system by its results, and by this standard the quarantine method has certainly been a failure. There is more foulbrood now present in many States than there was at the time the most stringent laws were passed. If the system has proved a failure why not admit the fact and try some plan that gives better promise of success?

In nearly every State there is an agricultural college with an extension department whose business it is to assist the farmers with every problem. If the beekeepers will strive to get a beekeeper with expert knowledge of disease, into that department, he will be of far greater service to the industry than half a dozen inspectors with police powers. As education increases the necessity for law enforcement decreases. With a proper knowledge of bee diseases there is little occasion for law enforcement.

Please note that it is not proposed to do away with all law or force, when necessary, but it is proposed to enforce bee laws exactly like other laws and make the inspector an educational officer.

Prof. G. A. Coleman, of the University of California.

# AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

C. P. DADANT ........ Editor
FRANK C. PELLETT ........ Associate Editor
C. C. MILLER ........ Questions Department
MAURICE G. DADANT ........ Business Manager

(Copyright 1919, by C. P. Dadant.)

## THE EDITOR'S VIEWPOINT

### Our Cover Picture

We are reproducing a cover picture which we used several years ago, because it is a characteristic view of a California apiary. The background of mountains is familiar to every visitor to the Golden State. The series of short courses in beekeeping has brought California prominently to the attention of beekeepers everywhere just now.

### Microscopic Studies

In this number, Dr. Brunnich, of Switzerland, gives us some very interesting microscopical studies, with an opinion concerning the use of the organs described. The description of these 6 glands, in the rectum, is not entirely new, as it was given on page 106 of Dr. Snodgrass' famed work, "The Anatomy of the Honeybee," with a cut, on page 103, showing a similar arrangement of the glands. Dr. Snodgrass simply writes: "Nothing is known of the function of these organs, and their glandular nature is entirely conjectural."

Dr. Brunnich goes a little farther. He gives a little more detailed description and boldly finds a use for the glands. Whether he is right or not, our thanks are due to the investigator. Every day the advance into the problems of nature goes a little farther and, although many steps have to be retraced, it is only through such investigations that we will continue to go forward in the immensity of the unknown.

### Save Your Bee Journals

There is an ever-increasing demand for back numbers of the bee journals by students of beekeeping who desire to complete their files. There is a wealth of valuable information in the back issues which is of every-day value to the beekeeper who will make use of it. In every number are valuable articles which do not seem to be of immediate interest, and the only way to make the most of such matter is to preserve the periodicals for future reference

### Preserving Royal Jelly

To provide a supply of royal jelly at the time of starting a new lot of queen-cells is sometimes a problem to the beekeeper. There are times when extra queen-cells are present in considerable numbers, so that an abundant supply could easily be secured for future use. J. W. George, of ElCentro, Calif., informs the writer that it is an easy matter to preserve royal jelly for a considerable period of time by placing it in a small bottle and corking it tight. He often keeps it for weeks at a time in this way. He finds that jelly that is slightly hard is easily softened by diluting slightly with water and that it is apparently as good as ever.

### Too Much Law

Since the legislatures of many States are now in session, the usual grist of bills relating to all subjects are under consideration. There is entirely too much ill-advised legislation, and legislation relating to beekeeping is no exception to the rule. In this issue the associate editor has an extended article, the result of five years of experience as a State bee inspector. Beekeepers should consider very carefully the possible result of improper administration before asking for stringent laws. In some States where good results are now being secured because the officials in charge are sensible men, it would be possible to paralyze the whole industry should an incapable man be placed in charge. It is dangerous business to centralize too much authority in one man.

In almost any line better results can be secured by education than by force. The short cut to eradication of foulbrood is by educating the mass of beemen in the proper treatment. One good teacher is worth a dozen policemen. Get after the extension departments of your agricultural colleges to put expert beemen in the field.

### Are Queens More Prolific Than Formerly?

In the December number of Gleanings, page 725, A. C. Miller states that he prefers the deeper Jumbo frame to the regular Langstroth and gives as one of the reasons that "our queens have outgrown our present hives." Well, that may be the case in some instances, but we wish to state emphatically that, for 50 years, we have found **our** queens capable of filling the broodcombs of the large hives.

True, we have often found some queens that were incapable of doing this; but we have considered such queens inferior. The queens which we use at the present day are purchased from southern breeders; the queens of the old days were of our own breeding, all Italians, of course. We are very much of the opinion that the large, deep frames are the main cause of the difference in breeding results with others. Greater ease in finding cells secures more speed in laying and apparently greater prolificness. Give your queens a chance.

### Beekeeping in Chile

Since the attention of our people is more than ever drawn to international questions, it may be interesting to learn how the honeybees were first introduced in Chile.

We understand that bees were brought to the North American continent by the Spaniards, in Florida, previous to 1763. They were the common black bees of the European continent, but we know nothing of the men who brought them. Not so with the importation of bees into Chile. This was not done until 1844, when Don Patricio Larrain Gandarillas bought, in Milan, 50 colonies of bees in boxes. He succeeded in packing and shipping only half the number. But these were all lost in transit, owing to long delays.

A little later, in the fall of 1844, another man agreed to try bringing the other 25 colonies. His name was Don Carlos Bianchi, and he succeeded in bringing alive two weakened colonie out of this lot. After landing these bees at Valparaiso, they were finally placed upon the farm of the Senor Larrain, at Penaflor. The following spring, the tenant of the farm was very much astonished at two occurrences which he did not understan The two colonies cast each a fine swarm, and beekeeping was thus established in Chile. The race of bees would have been pure Italian if other immigrants had not succeeded in importing also the common bees. S the bees of Chile are a mixed race, better than the common bee of Europe, but of less value than those Italy.

The above interesting informatio was gleaned from the book "Colmenas I colmenares" (Hives and Apiaries) of Don Carlos Echeverria Cazotte, published a few years ago, in Santiago De Chile.

### A Winter Problem in the South

Beekeepers living in the Southern States often complain that too much space is taken up with discussions of wintering, a subject in which they are not interested. After visiting in most of the Southern States it is very evident to the writer that there is a serious winter problem in every Southern State. It is true that it is a different problem from that presented to the northern man. In the south it is largely a question of conservation of bees and stores. Bees will live through without extra protection or care, but often the colonies are too weak to profit by the early honeyflows. In California many beemen make it a practice to extract their honey too closely in the fall, with the result that the bees are not strong in time for the orange flow and a possible crop is lost. An extra super of honey left on the hive will often bring several hundred per cent in returns the following spring.

Southern beekeepers may not be interested in employing the methods used in wintering in the north, but if they will read the wintering articles closely, they can often find principles discussed which may be applied with profit to their local conditions. It is safe to say that nowhere in America is there a locality where th beekeeper cannot study the wintering problem with real profit. Not all of wintering consists in getting the colonies through alive, but rather in bringing them to the first honeyflow in condition to make the most o every day when nectar is available.

### Do Bees Get Honey From Corn?

There is some controversy as to whether the bees get honey from Indian corn or maize. We have frequent reports of honey from this source, yet some observers contend that the beekeepers are mistaken, and that the bees get only pollen from corn. However, some contend that the bees may be seen at times, gathering pollen from the tassel, while at other times they work on the silk from the ear and are apparently getting nectar, but no pollen. It is known, also that at times plant lice or aphids are present on the stalks and the question arises whether the bees do not get honeydew from these plant-lice.

So much has been said on the subject that we are very anxious to settle the question fully and we will accordingly very much appreciate the favor if any beekeeper who has made observations along this line will write us what he has seen.

### Snow About the Hives

This is an uninteresting subject for those of the American Bee Journal readers who are scattered along the Pacific Coast or who live in the Southern States. But it is a very lively question for the Middle and Northern States during January, February, and often March. What to do with the snow? Leave it about the hives and over them?

For a number of years, in my younger days, I feared that the snow covering the hive entrances might smother the bees. So it was customary with us to remove it from the entrance as promptly as possible after it fell.

One winter, a few days after a very heavy drifted snow-fall, I happened to call on a friend who had a dozen colonies, more or less, ranged along the sheltered side of a very high fence. My mention of the possible smothering of the bees that were under the snow gave him at once some anxiety. He and I walked to the apiary, where nothing denoted the presence of hives of bees except a slight wave in the appearance of the snow-drift over each colony. We dug the snow away in front of the first hive and soon found that the colony was alive and well, having melted the snow away from the entrance a few inches, through the natural heat of the bees, evidently. This made one feel as if the "igloo" of the Eskimo might not be a cold winter home after all.

The other colonies were therefore left to shift for themselves under their snow blanket. But here comes the other side of the picture:

Some time later a thaw came and the snow began to melt until a hole about 4 or 5 inches in width appeared in the snow-drift before each hive. The warmth induced the bees to issue, and large numbers of them died in this passage, in front of some of the hives. Those colonies were in bad shape when spring came.

Ever since that time we have considered it a very favorable condition when there was snow enough to cover the hives with it, or at least to thoroughly shelter them against winds. But whenever mild weather came, we carefully and as noiselessly as possible, removed the snow from the entrance. Melting snow which runs into it makes a very disagreeable condition for the bees that wish to take a flight, besides the danger of its freezing and making a cake of ice where the air should enter.

When bees take a flight, in mild weather, we found it very unadvisable to try to keep them confined. We have wide roofs over our hives and usually turn them over in front of the entrance for an alighting place. A little straw, or some sawdust, or coal ashes, scattered in front of the hives, helps them in finding a footing where they may not be chilled.

### Prepare to Stimulate Your Market

With the harvesting of another crop, the world shortage of food can be expected to be somewhat relieved. A fall in prices will be a natural result of this condition. Beekeepers are now enjoying such prices as they may never see again. However, by judicious advertising of our product we may well expect to maintain the price of honey at a profitable point. It stands the beekeeper in hand to begin his advertising campaign before a smash comes. Good printed matter, attractive packages, and many other suggestions can be used to stimulate the interest in honey as a food product.

# DEEP VS. LANGSTROTH FRAMES

## A Discussion of the Two-Story Brood Chamber as a Substitute for Deep Frames

BY C. P. DADANT

The following question is representative of those reaching the editor following the appearance of the article on large hives in the November number:

"I am interested in the discussions regarding size of hives, in the Journal. I started beekeeping with eight-frame Langstroth hives, some half dozen years ago, but soon finding them too small have changed completely to the ten-frame. Now I am convinced that a single body ten-frame Langstroth is too small to contain the bees and sufficient stores to winter several of my best colonies.

"My hives, however, are new double-walled, so I dislike to incur the trouble and expense of changing. What would you think of increasing the size of my brood-chambers when there seems to be need, by placing a half-story with shallow frames on the present brood-chambers, to remain permanently, winter and summer? Place on this the queen-excluder, obtaining my surplus above?

"Of course there would be a little more difficulty in inspecting the brood-chamber, but this doesn't seem to me serious. My chief question is, would the bees fasten the upper frames to the lower ones, or would the break in the continuity of the brood-chamber by the two sets of frames interfere with brood rearing or be in any other way serious?

"Will you, through the American Bee Journal, kindly give me your opinion, with any suggestions?"

D. C. P., Massachusetts.

In giving prominence to large brood-chambers, in our November number, I did not intend to start a series of articles on the subject. But it seems to be a question of popular interest, as shown by the above letter and a dozen or so of similar enquiries, of which this is a fair representative. The matter has also been discussed, I am told, in the California meeting.

Perhaps the best reply I can give should include an account of my own experience in years past.

About 1876, we undertook the care of an apiary of 100 colonies in 10-frame Langstroth hives, for an old beekeeper who felt unable to look after them. In the same outapiary we kept a few of our large hives. Before the fruit bloom was ended I noticed that the queens, in several of the Langstroth hives, were crowded for room. The bees were making preparations for swarming. So we gave them each a half-story super of the kind we use for extracting, thinking the bees would put the honey in them and leave sufficient room for the queens below. But the queens at once ascended into those half-story supers and filled them with brood. I suppose that some of our small-hive beekeepers would say that this showed the need of queen-excluders. It did, if we did not care to give the queen all the room that she could occupy. Very evidently this was the thing needed, for in none of the large hives did the queens ascend into the supers. In fact those large hives did not need the extra space until later.

The story-and-a-half hives thus made proved very populous when the crop came. I do not know just how much difference the spaces between the two stories caused in the laying. On this matter, opinions differ. The Danzenbaker hive, which has been so much praised and which is formed of two shallow stories, is being abandoned by many of its original adherents, I am told. Perhaps one of the objections to it is this space which cuts the brood apartment in two and compels the queen to walk about when she loses the thread of her regular laying, which, as we know, is most usually in a circle. However, that extensive beekeeper of Texas, Louis Scholl, who is now editor of the Beekeepers' Item, uses sectional hives altogether and derides the suggestion that those spaces are objectionable. Although few of his neighbors in Texas follow his lead, I see that it has made some proselytes in France.

Right here, Mr. Pellett, our associate on the American Bee Journal staff, calls my attention to a fact which has some bearing upon the greater or less ease with which the queen can get over the space between two stories. In the old days, when the thin and narrow top-bar of the brood frame was in general use, the two-story brood-nest was more practical than it is now. Thick and wide top-bars were adopted because they help in preventing the building of much burr-combs between the stories. The thicker and wider they are, the more difficult it is for the queen to find the other story and continue her laying.

Mr. Pellett asserts that when a two-story brood-nest is used, the queen will readily enough go up from the lower to the upper, but seldom returns again, especially if there are other supers above to which she can go. He finds others with similar experience.

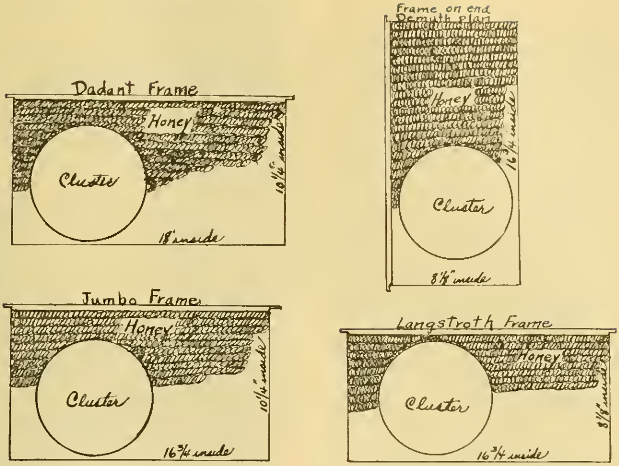
The thick top-bar often so effectively divides the two stories that swarming is aggravated and there is sometimes serious difficulty in getting the queen to return to the lower story, unless she is driven there accidentally in opening the hive. The large brood-chamber avoids this difficulty.

When thin top-bars are used, and especially if they are not of the broad kind the bees build many brace-combs. This efficiently connects the two stories and enables the queen to go back and forth more readily. Probably the difference in results between beekeepers, as to the ease with which the queens go back and forth, is due to some such condition, very easily understood.

Burr-combs are not of much importance, except in the annoyance they cause in handling the different stories. With large brood-chambers, wide top-bars may be used which do away with much of the burr-comb.

The main objection to the storied brood-chambers comes for winter.

At the Richardson apiary during the Visalia short course.



The above diagram illustrates comparative conditions, for winter, of the different styles of hive under discussion, with clusters of the same size. The honey of the larger hives being in a less number of frames, there is more of it in each frame and of easier access to the bees. It is important that the honey should be in large proportion above them during the coldest days, when they cannot move in any direction except upwards.

But a story-and-a-half hive would very probably be better for winter than the shallow Langstroth hive. It would contain more honey and more bees. The additional possible loss of heat may be made up by greater ease for the bees to reach the center from the outer edges. If the beekeeper wishes to make up for the exiguity of his hives, without changing their style, this may be a fair remedy. I have never tried it for winter.

However, I insist that, if we wish success in every way, plenty of breeding room, a compact brood-chamber which will not cause the queen to go about hunting for empty cells, protection against excessive swarming, no brood in the upper apartments without excluders, the deep brood-chambers for brood and shallow supers for honey are preferable to a story-and-a-half or to a number of shallow stories, especially in our climate of hard winters.

The article of our old friend, Dr. Bohrer, on page 8 of the January issue, in which he relates his conversation with Moses Quinby, concerning the depth of brood-chambers and the quantity of honey above the cluster, in winter, described in a clear manner the difference between the deep and shallow brood-chamber, when the bees are confined for a long time, in very cold weather. An additional evidence of the strength of this point is furnished by the recommendation of Mr. Demuth to turn the hives on end for winter, as it exemplifies the greater convenience for the bees in having a large amount of honey above the cluster instead of on the side. Similarly I suggest that a large number of shallow frames in a single story is less convenient than a similar surface in deep frames, as it splits the cluster into too many groups. So a Langstroth hive of 13 frames, recommended by some because it makes a square hive, is not so desirable as the deeper Jumbo with a less number of frames furnishing as much space.

However, when the question is to use what we already have, so as to waste nothing, the beekeeper may well hesitate between his ten-frame hives with additional half stories for brood and the Jumbo hive upon upon which he would use his full-story brood-chambers as supers. If I had the choice to make, I would take the latter, for there is no doubt in my mind that bees winter better and breed earlier and more freely in spring, in deeper hives.

Remember that this is not guesswork. Although we do not like the Langstroth frame, we have a number of them always on hand with bees in them, for the demand is for bees in that style, the mass of beekeepers having never yet tried the deeper frames, in this country, and we sell bees often in that style of hives. So we have occasion to pass judgment every year in the comparison of the deep and shallow frames.

May I again insist on the fact that most of the shallow supers in general use are too shallow? We object to handling too many frames, even for supers. The deep Dadant or Jumbo frames are too heavy for ease in extracting; but we do not extract from the brood-chamber. In the super we use a frame which has two-thirds of the capacity of a standard Langstroth frame. Here are the measurements:

Langstroth brood-frame, 134 square inches.

Dadant extracting frame, 92 square inches.

Dadant brood-frame, 186 square inches.

Jumbo brood-frame, 170 square inches.

A serious difficulty of the story-and-a-half brood-chamber is that it gives us 20 frames to manipulate, when hunting for a queen, for queen-cells, for disease, or for any manipulation of the brood-combs.

We have received several letters asserting that even our large brood-chamber is not large enough for the capacity of some queens. That is perhaps true in rare exceptions. It is only an additional argument in favor of large brood-chambers.

I feel very free to discuss this large brood-chamber question, because I have no ax to grind and because I know by my own experience and by that of many who have had similar experience that we have some winning arguments. But I do not wish to urge anyone to abandon the system which he uses, owing to the expense it involves. The matter is not of so deep importance as was the change from the old box-hive system to the movable frame.

---

## Tribulations of a Beginner

From a personal letter to Dr. Miller

Dear Dr. Miller: A year ago last winter I wrote you asking certain questions, also implying that I expected to get so proficient in the management of bees that I would "at least do as well as the average beekeeper." Now, because you are interested in bees, and further, because I believe you are interested in honest effort I want to tell you my experiences as briefly as I can since writing the preceding letter:

During the winter of 1914-1915 I spent a great deal of my time trying to fathom the mysteries of bee literature, and had I not been very dense I would have been better prepared to manage bees in the following spring, perhaps. The spring of 1915 found some 25 colonies under tall hickory trees about 12 rods from our house. My plan was to clip queens and then keep queen-cells removed. When I thought the time was right to clip, I began operations about 9 a. m. and worked hard till I was called to dinner, but could not find a queen. I hurriedly ate my dinner and went at it again, and by supper time I had clipped two queens. The first one I dropped 5 times in the grass before I managed to get her wing clipped. I wonder that she did not fly away in disgust. I learned two things this day, viz.: hives placed in a shimmering light are hard on the eyes and temper, and that my bees were very cross. They would be on the war path for days after opening the hives, and sting so many people that I finally decided to let them alone, only giving them a super when I judged they needed it (by tipping up the back of the hive after dark.) Of course, I had swarms galore and chased to the top of those trees, more than 50 feet high, time after time, till I was so sick of the sight of bees that I would not even look at a fine swarm as it sailed away. As a fitting climax to the season's work, when I came to remove honey I found that eight of the old colonies that I estimated had 50 pounds of surplus each, now consisted of a disgusting mass of moth-riddled combs. Well, I had some **honey** to pay me for my trouble. Sixteen strong colonies went into winter quarters last fall and they all came out this spring O. K. This time I moved my bees as far from everyone as I could and repeated my efforts of the preceding spring—clip and watch cells every 9 or 10 days, with much better success. By shaking and destroying cells I have had practically no swarming this season. Though the bees were cross, I have examined every colony liable to swarm all the season. One colony was taken to the University of Wisconsin and with the remaining 15 I increased my apiary to 41 colonies (strong) by drawing brood as it could be spared. I raise my own queens for the nuclei. Besides being drawn upon pretty heavily, the 15 old colonies have given me a surplus of about 100 pounds each. As my bees have been hybrids (some pretty black) I have been trying to improve my stock by introducing pure Italian queens. In addition to the 12 queens purchased, I introduced 10 pure Italians of my own rearing later in the season, replacing some of the earlier queens. Perhaps it was poor economy, buying the 12 queens; however, I thought new blood might be beneficial; also, I wanted pure queens in all of my colonies at the opening of next season in order to eliminate hybrid drones and to improve the temper of the workers as soon as possible. I said my bees were cross, also in 1916. Perhaps some might differ with me in judgment; they pestered the horses so badly that my brother was obliged to give up cultivating a field of corn 60 rods away, twice the past summer; though I had not disturbed them for two days previous, and when I did work with them I tried my best to keep peace in their family. However, I finally hit upon a plan that improved matters to a certain extent. As I was protected, I didn't pay much attention to cross bees, and as I left my tools some 30 rods away from the hives, there was invariably a small-sized swarm accompanied me the whole way when my work was through, it occurred to me that I was encouraging my bees to follow people; so I adopted the rule of giving all bees inclined to follow me from the apiary such a smoking that they couldn't see straight. The other plan was to fasten a tin pail to one end of a 5-foot, quarter-inch gas pipe, put some combustible matter in the pail, get a good fire going, leave the pail some distance from the apiary and then encourage the cross fellows to follow by going among the hives (avoiding annoyance by keeping out of the bees' paths of flight), and then give the cross ones a good warm reception.

Wisconsin.

## Who Can Answer?

I am wondering if you could not make a suggestion relative to management in this community which would obviate the greatest objection which exists here to beekeeping. We have thousands of acres of fruit trees, largely apple and pear, in this vicinity, which furnish the first flow of honey. These trees are all sprayed with arsenate of lead for coddling moth. Most of the orchardists aim to spray as soon as the blossoms fall. There are no blossoms secreting nectar after the fruit until the locust comes. Arsenate of lead is supposed to have a rather sweet taste and many of the beekeepers have observed that the bees eat this poison when it is put on the trees for the first time and, in consequence, thousands of bees are killed, and very few are kept in the vicinity of the orchards I am wondering whether some system of feeding for a short period at this time might not keep the bees away from the fruit trees and make it practical to keep bees in the orchard district, where I reside.

Many of the orchards are seeded to alfalfa and in the subsequent spraying a great deal of the arsenate poison falls upon the alfalfa under the trees, but it is claimed by the beekeepers that the alfalfa growing in the shade of the orchards does not secrete much nectar. The largest honey flow comes from the second crop of alfalfa. H. M. TAYLOR,
Yakima, Wash.

# BEEKEEPERS BY THE WAY

A beekeeper on three continents.

**A Beekeeper on Three Continents**

It is given to but few men to follow beekeeping around the world. W. B. Dickenson, of Chico, Calif., was a beekeeper in England, later in Egypt, and now in California. He has thus had experience in honey production on three continents, Europe, Africa and North America.

As a young man he enlisted in the British army and served for five years, part of the time in East Africa, and ranked as a staff officer when he retired from army service. He was then chosen as government apiarist and sent to Egypt as perhaps the first extension teacher of beekeeping. His field extended up and down the Nile Valley from Alexandria to Kartoum, a distance of perhaps a thousand miles. The Egyptian beekeepers practice migratory beekeeping with their apiaries on boats floating down the river as the season advances. The methods practiced are crude and the time was not yet ripe for teaching of modern methods in Egypt among the mass of beekeepers.

Mr. Dickenson has been in California for several years and is now in charge of the apiary department of the Diamond Match Company of Chico. He has been in charge since this concern established a separate department of bee supplies and they now rank third in volume of manufacture of bee-keeping equipment. Although the Diamond Match line of supplies has only been in the market about five years, it now goes to all parts of the world, and the volume of sales is increasing at a phenomenal rate.

## Entrances

By J. F. Diemer

THE article by Arthur C. Miller, in the August number of the American Bee Journal is responsible for the trouble and expense it cost me to devise an entrance that opens and closes like a barn door, on rollers. While Miller's article had more to do with the inside workings of the hive and the appropriateness of a side entrance than with the entrance proper, it gave me the idea of the one shown in the picture. Perhaps this picture describes this entrance better than I could, but I will say that it may be opened to any extent desired, from ⅜x3 inches for winter use, to the full length of the hive, as, for example, when the 15 pounds or more of busy bees, in a 3-story hive are gathering 20 pounds of honey per day, worth 30 cents per pound, and doing this every day for 20 days, and board and clothe themselves, as usual. This would amount to $120 per colony, and 300 colonies would furnish the poor beekeeper almost enough to live, with the present high cost of living, would it not, sir?

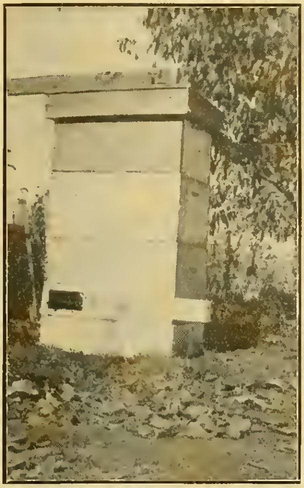
Some folks may doubt this, and I have my doubts, also. But this large entrance, during a large flow, may help to keep a large swarm of bees from coming out when the poor beekeeper is largely engaged elsewhere, and help to solve the swarming problem.

But where this entrance shines most is in moving bees. Just nail on a frame with screen over the brood-combs, using four 3-penny nails, partly driven in, so they will pull out easily. If the bottom-bar is nailed to the hive-body all you need to do then is to push the door shut. Two minutes is plenty to get a colony ready to be moved. Load them on your Ford truck, if you can 'ford to own one, toot your horn and away you go.

The hive shown in the picture, on the 1st of October, contained, by actual weight, 81 pounds of honey, 12 pounds of bees and a good queen. I have 32 here in the home yard, running about the same. They were formed by the "demobilization" of a lot of nuclei.

My bees are well supplied with stores. I left most of it on the hives, on account of the quality. I am just going to make them eat it, and perhaps they will gather better honey next year.

The space between the bottom-board and the frames is seven-eighths of an inch. I don't use the cumbersome alighting board, as I think Miss Bee can fly right into the opening and save walking. Understand that I have used this entrance only since the 1st of October, but it looks good to me. The winter entrance is at the corner of the hive, where I believe it belongs, as the dead bees, in winter, falling near the center of the hive, won't cork up the entrance. Of course this plan ruins the hive-body for anything but a lower brood-chamber, but what's the difference, when the handiness of the entrance is considered? For a hive-stand I use old supers, same size as the hive-body, in length and width.



Diemer's adjustable entrance.

Liberty, Mo.

## The First American Fighters in Europe

By a Roumanian now in America

WHILE at a great distance around my home there was not a single flower to be found, as August had closed its shop, a few miles from my beehives there were thousands of trees of blossoming Sophora Japonica.

My poor bees were starving, while over there, not so very far, tons of honey needed to be cared for.

And what fine workers my bees were! Yet the best of them were Americans. I had bought, from the United States, a golden queen. She should have been—maybe she was—a republican, like all these queens and kings we see in this country. She was the finest and noblest queen I ever saw. Her daughters were all like herself, strong, fine, golden, wonderful, hard-working girls. Well, full-bred American girls!

But if they were hard working they were sometimes very hard stinging, too. I had at that time, as pupil, a young peasant, a prospective teacher, who came for a couple of months to work with me in order to learn some of the tricks I used in bee culture. This young fellow came one day, running as mad toward me, crying as loudly as he could:

"Look out, sir! They are after me. Take shelter!"

"What's the matter with you?" I asked, believing he had gone crazy. "Who is after you?"

He howled:

"The Americans are coming. The Americans are after me. Take shelter. Heavens! Where is the water barrel?"

Before I could understand what the connection was between the Americans and the water barrel, my pupil had jumped into the large barrel we had there ready in case of fire. The young man ducked, and when his nose came up blowing water in the air like a whale, I grasped the situation:

The finest golden colony of Americans was after his skin. Taking a sack I covered the barrel and took the big smoker, which we called, on account of its size, the "Dadant" smoker, I easily chased the bees away; but I couldn't convince the prospective teacher to come out of the barrel until I started to smoke him out under the covering of the sack. He came out of the barrel as though from a dugout, asking:

"Are the Americans still around? My! what she-devils they are!"

Surely this lad was the first one in Europe to know what Americans are like when they get angry. The poor fellow had run like a Boche, perhaps quicker. And he seemed to enjoy the barrel; yet this made me glad to have only one pupil, because at that time barrels were pretty dear and scarce.

Since then the young man displayed great care about that special refuge. Americans are able to make you like even water barrels sometimes.

* * * * * *

I had arranged all there was to be done in order to move the bees from my place to the other location. We had spoken to a moving van proprietor who liked bees and wanted to help us. So he was to come one evening and haul them over. Unfortunately, I was called to town for an hour. That hour lengthened to half a day. So I telephoned to my pupil to start the whole thing alone. He seemed happy to be entrusted with this business and assured me he would do his best.

Coming home in the evening, I was just thinking about my bees, when I saw, some hundred yards from my home, people running, fighting the air with their fists, and others with their coats over their heads. Some of them were weeping, but nearly all were swearing like heathens.

Then I saw a cart which looked queer in the darkness. The horses before the cart were jumping up and down as though they were rocking. A man was hanging on their bridles and was carried away by them toward the darkest part of the street. There he permitted his horses to start a race across the town, while he threw himself on the ground, covering his head with everything he could reach. Near the cart was a man in my pupil's clothes, but he had a strangely contorted face, frightful to behold.

As this monster saw me he spoke in a well-known voice:

"Oh Lord! the Americans, sir; the Americans have broken loose!"

It was my pupil, but the Americans had made of his clever, bright face something like a Chinese idol's hideous figure.

The poor fellow continued:

"I didn't fasten strongly enough those divisible hives, and now the Americans are streaming out."

This was no time to scold, so I asked, quickly:

"Where is the Dadant smoker?"

"Beg pardon, sir," he went on, "I didn't think of it; I forgot to take it. This is why I am not able to handle the bees."

"Then hurry; bring some water in your felt hat. Hurry!"

"Excuse me, sir; but how will we sprinkle it over the bees? They will drown."

"You are going to sprinkle them with your mouth, like the washerwoman does before she starts ironing the linen."

My pupil's face brightened, as far as his swollen skin permitted, and he ran to the nearest water hose on the sidewalk.

* * * * * * *

I looked at the hives and saw the Americans streaming out. My flashlight seemed to anger them. At that time I used to perfume my clothes with violet in order to pacify the bees. Surely this saved me from having trouble that night, because the Americans were furiously patrolling the air.

From afar I heard my pupil's voice. Somebody wanted to take him away, while he was protesting loudly:

"I can't come, sir; I am busy now."

The other voice ordered, angrily:

"You will come to the police station, or I will use force. You have disregarded my order. The whole neighborhood is complaining against you. Come to the police station."

"But I am not in the police's service," went on my pupil's voice. "I am in that gentleman's service."

"Then I am going to arrest this man, too."

I had lowered my hat over my eyes on account of the warrior-like behavior of my bees. I turned my flashlight on the policeman and told him briefly:

"Don't advance! Stop! Stay where you are!"

The policeman advanced toward me, saying, with harshness:

"How dare you give me orders? I am going to arrest both of you for the trouble you are causing with these bees; you and this fellow here."

"Well, do as you like,' said I, "but don't advance. I warn you."

"Without hesitating, the policeman advanced, put his hand on my pupil's arm and said, authoritatively:

"You are under arrest. Come with me to the police station."

Thus saying, he grasped my pupil's arm and was going to pull him towards the police station. He had not even finished his sentence when he gave a yell and started to slap his own respectable face with both hands. Then, without even taking leave of us, he began the most wonderful race I ever witnessed. He ran in the direction he came from. My pupil stood there a few moments, laughing, then he became mournful and said:

"Beg pardon, sir, would you mind taking this hat in your hands? Because I will be gone."

"Where do you want to go just now?" I asked wonderingly.

"I don't **want** to go; I **must** go, sir," he went on, sadly.

"Go? Where? Where must you go?"

He simply put his hat in my hands and starting in the direction the policeman had gone, he said:

"I must go after the policeman, sir. I am under arrest; I must run after the policeman."

"Stay here," I laughed; "you have plenty of time to be arrested."

"No, sir," he went on, with a very serious air. "I am a stranger in this city, and if that man goes out of sight I won't be able to find his old police station, and will get lost. I must hurry, sir."

I couldn't remain without help there, so I used my whole strength to retain him, till I was sure that the policeman was out of sight. Finally he acceded to my wish; but said, sighing:

"I would have been proud to catch that man, to show him what a good racer I am; because it seems to me that he must be a professional racer."

With some trouble we removed the cart from that spot. People still came to look at our business and then ran away like Boches.

The pupil and prospective teacher, after seeing how many people came, only to be chased away by our bees, said:

"No, I don't believe that policeman was a professional. I see all those who come near us become first-class racers." Then rubbing his swollen face, he added:

"I wonder who wouldn't be a first-class racer, with these American she-devils behind?"

## A Novel Queen Mating Nucleus

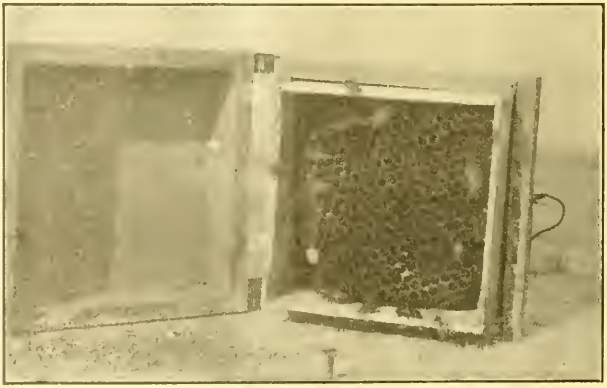
When it comes to mating queens with a minimum of equipment as well as the smallest possible number of bees in a nucleus, C. B. Bankston, of Buffalo, Texas, probably holds the record. When the baby nucleus was brought out, it seemed that the limit had been reached, but Rauchfuss brought out his mating box containing three comb-honey sections. The great difficulty with these small mating nuclei lies in the difficulty of maintaining them and the frequency with which the bees swarm out when the queen goes on her mating flight.

Bankston has discounted the smallest nucleus previously offered by more than half and is now mating queens successfully with a small box enclosing a single comb-honey section. The photo will give a good idea of this little nucleus. It is composed of a small wood frame which comes together over the section like an old-fashioned daguerreotype photograph. Two sides are covered with pasteboard and the flight opening is made by pushing a lead pencil through the pasteboard. The small opening is just right for one bee to get through at a time.

In stocking these small nuclei he places a ripe queen-cell on the comb and shakes in about 50 bees, never more than 100. The thing is then closed and carried to some distance. With perhaps a hundred of these small nuclei he drives far enough from the apiary to prevent the bees returning to their hives. The nuclei are hung on wire fences, in trees or other convenient situations. No effort is made to maintain them permanently. As soon as the young queens are mated and laying they are used to fill orders and go immediately into the shipping cages.

Mr. Bankston maintains that there is less trouble from swarming out than with the baby nuclei or other small mating hives which are designed to be maintained during the season. He says that the number of bees is too small to establish a swarming impulse, and hence the loss is very small.

Since there is no effort to maintain these small colonies and only a few bees are used in each, a large number of queens can be mated without seriously reducing the breeding colonies or honey-producing colonies in the apiary. The great cost in bees of maintaining mating hives is the chief drawback to commercial queen-



C. B. Bankston's mating nucleus made from a single comb-honey section.

breeding and if this Bangston plan can be utilized successfully it will result in a great saving to queen breeders. It is such a radical departure from accepted methods that we hesitate to recommend it without trial. However, it is certainly worthy of a test and we will be glad to know how well other breeders succeed with the plan.

## The Swarming Impulse

By C. C. Miller

I HAVE been much interested in reading in November American Bee Journal, page 379, the article on "Swarm Impulse" by that always interesting writer, Arthur C. Miller. He objects to the growing tendency to discard swarming-cells as inferior. Time was when it was quite generally believed that such cells were superior. Certainly one would expect a colony preparing to swarm—since swarming practically always occurs when conditions are of the very best—should do its best at making queen-cells. One proof that it does so is the fact that in the cells left by the young princesses there will always be found a remainder of dried royal jelly, showing that during the feeding period the royal larva had all the food it could consume and some to spare. On the other hand, when the beekeeper takes matters into his own hands, and induces the bees to rear queen-cells, no such residue will be found in the vacated cells. It does not necessarily follow that in the latter case the queen may not be just as good as one that has been fed a surplus, for what good can the surplus do if it is not consumed? But there is always the possibility that in some cases the youngster might have eaten a little more if it had had it.

So, although other cells may be as good as swarming-cells reared by the same colony, some of them may not be, making the swarming-cells in general the safer to choose.

Mr. Miller winds up by saying: "Save the 'swarming-cells,' if the stock is good. The queens will not inherit any swarming impulse." I'm not sure I know for certain just what is meant by that. If it means that there is no more danger of having the swarming tendency inherited through swarming-cells than through cells reared by the same colony, then I am in hearty accord. If it means what at first sight seems to be on the surface, that when swarming-cells are taken from a colony much given to swarming the resulting young queens will not inherit that tendency, then Arthur C. and I are no longer on speaking terms on that subject. Is it not a fact that some varieties or strains of bees are more given to swarming than others, and that that tendency is continued from one generation to another? How else can it be continued but by inheritance? In that case will not the young queen inherit the swarming tendency, whatever the kind of cells used?

I wonder if my good friend would not agree to stand with me on some such platform as this: Don't be afraid to use swarming-cells from any colony with which you are satisfied, but if you don't want swarming colonies you will do well to breed from those colonies which show least inclination to swarming, and are at the same time among the best in other respects.

Incidentally our friend has a theory that he is too "busy just now" to divulge, and according to that theory "when two cells of nearly the same age are left, one is destroyed soon after the first hatches, but not so when one cell is very young, or just started." I've always supposed it was just the other way around. How is it with others?

## FIFTY YEARS AGO---FAILURE VERSUS SUCCESS

**Charles Dadant, in the American Bee Journal for February, 1869**

A few days of good harvest being sufficient for populous colonies to fill their hives with honey, the whole secret lies in having strong stocks in readiness to secure the harvest which those few days offer.

### Bees Self-Managed

During the winter and spring, the 40 beekeepers within 2 miles around my apiary let their hives remain on their stands without interfering with the bees.

The last year's honey, in large part consumed in the cold days of winter, was soon used up in rearing workers, together with a great number of drones.

The weather being very wet from April till the 10th of June, the bees killed their drones, then already full-grown, and the queens stopped laying almost entirely. The apple blossoms yielded no honey. The white clover began blossoming on the 20th of May and by the 10th of June more than half of the blossoms were already withered.

From the 10th of June the queens resumed their laying, but the flying of the bees on rainy days had reduced the population of the hives and the brood consumed the honey as fast as gathered.

On the 1st of July the hives were filled with brood and young bees; as the honey afterwards became scarce, they mostly starved or remained weak from want of sufficient nutriment.

From the 5th of July, the queens stopped laying. The lindens had blossomed 3 weeks earlier than usual. Some hives swarmed late, but the swarms and the parent stock remained weak till winter.

By the 10th of August the colonies were again too weak for gathering honey from summer flowers and from fall flowers, buckwheat, etc. The queens resumed laying, but, as in the spring, nearly all the honey gathered was consumed by the brood as rapidly as it was collected.

On September 16 brood and young bees were plenty, but the flowers were gone. The asters and other fall flowers were cut short.

**Result**

No swarms!
No surplus honey!
Bees starving for winter.
Poor season for bees!

### Rational Beekeeping

As soon as my colonies were taken out of winter quarters, I gave them plenty of rye flour and opened the hives frequently in order to equalize all the colonies.

In April all my hives were filled with worker-brood. I raised very few drones, as I allow scarcely any drone-cells to remain in my hives.

In April the honey preserved in the hives by indoor wintering was consumed in brood-rearing. I gave to all my colonies, every two or three days in bad weather, several tablespoonfuls of syrup to maintain the laying queen. On the 10th of June the bees had no new honey in their hives. I had to feed syrup to all the newly-made swarms to keep them from starving.

From the 10th of June the remaining white clover gave plenty of honey; but for 10 days it was so thin that it seemed like slightly sweetened water. This continued till the 5th of July, my hives overflowing with bees.

On the first days of July all the cells unoccupied with brood were filled with honey. I extracted 2 or 3 frames (11x18 inches) from each hive. Very little honey in surplus boxes.

As soon as the linden blossoms were done I opened my hives frequently to remove combs for my swarms, as I had taken 3 swarms from each 2 colonies. I fed them till July 29.

On the 10th of August the bees were at work on the summer flowers and later on the buckwheat; and, filling their hives, stopped breeding. By the 1st of September some of my hives were so filled with honey that the queens had no room to lay. I extracted 2 or 3 full combs from each hive. In 3 days they were filled again.

On September 16 the frost killed the flowers, but my hives being too full of honey, I exchanged full combs for empty ones from my small swarms, equalizing them for winter.

**Result**

One and a half swarms and 60 pounds of surplus from each hive.
Good season for bees!

**Moral**

Honey is more abundant than good beekeepers,

## About the Bee's Honey

By Dr. Brunnich

THE reader who, with his bread, is eating honey, scarcely imagines how much is required before the sweet ambrosia comes into his dish. That in the future he may have a double enjoyment in eating honey, I wish to tell something about the manner of its origin.

Every man knows, with the exception of some barbarians, like that peasant near Zong, who bitterly accused my bees of devouring the blossoms of his cherry trees, I say, every man knows that the flowers secrete nectar, as a compensation to the insects for their services as love-messengers in carrying the pollen from one plant to another. By far the most important of those "postillons d'amour" are the bees, because they appear early in spring and in great numbers.

The heart of the bee beats in the abdomen and nearby the Creator has given to the little insect a most comfortable valise, the honey-sac. This is formed of a very thin elastic membrane, around which 2 layers of muscles are acting; by the contraction of the latter the honey-sac shrivels to a tiny knob, while the membrane is folded to thousands of little plies. When quite filled, the little bladder may contain about one decigram of water, that is about as much as the whole bee weighs. A wonderful valve leads into the stomach and at discretion the bee can shut the honey-sac or it can let run some microscopic drops into the stomach, if it needs new strength. When the bee is flying out for honey it takes drop after drop of the nectar, till the honey-sac feels full enough to go home.

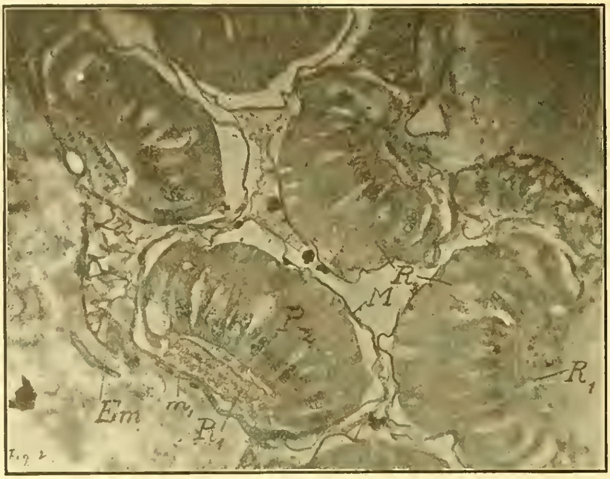


Figure 2. Microphotograph of the rectal glands of the peritrophic membrane M. (Dr. Brunnich).

The nectar of the flowers is very thin and often contains but about 20 per cent of cane sugar and 80 per cent of water. Why bring so much useless water into the hive? At least half of the water passes through the fine membrane of the honey-sac into the surrounding blood, while the bee is flying home. By this water the whole blood is diluted, but in the rectum there are 6 glands which withdraw the superfluous water, and before the bee enters its flight-hole it spatters out the water with a minute flash. And now it hurries into the streets of its waxen palace to seek an empty cell; but it has no time for long seeking. It does not care to sequester a cell in which the queen is about to deposit an egg. So the fresh honey is placed irregularly in the hive, in front and behind, above and below. The honey thus is spread over a great surface for evaporating. But by evaporating there is done only a small part of the thickening of the honey, from 30 to 40 per cent to about 18 per cent of water. The bees manage this themselves more efficaciously by carrying about the honey. Especially in the night, the young bees suck up the fresh honey, and after having withdrawn a new quantity of water within their honey-sac they pour the liquid in other cells. By so doing the honey is rendered thick in an effective manner and room is made for new coming honey. For the high season the question of room is a very important one in the beehive, for here come 20-to-40-days-old bees with nectar, or 15-to-20-days-old sisters, with both nectar and thick pollen pellets, all clamoring for empty cells for their burdens, while the poor queen hurries around searching for empty cells for the eggs which she must deposit or lose at random. Think of it! In the brood-chamber of a good hive there are 100,000 cells, more or less, 75,000 of which may be occupied with brood in all stages, and the queen demands 2,500 to 3,500 cells for her eggs daily; the bees need 15,000 to 30,000 cells for fresh honey and at least 2,000 for pollen. The most active change goes on daily, in the brood-nest; here the cells, which young bees have just left are filled with eggs again, or with pollen, or honey, and the ones must constantly make room for others. Often then, the room becomes short, and if the careful beeman does not procure space by giving new combs, or by extracting the filled ones, or by adding supers, there enters a condition of alarming lack of room, which hinders all the work and demands a shortening of the room allotted to both queen and workers. This either

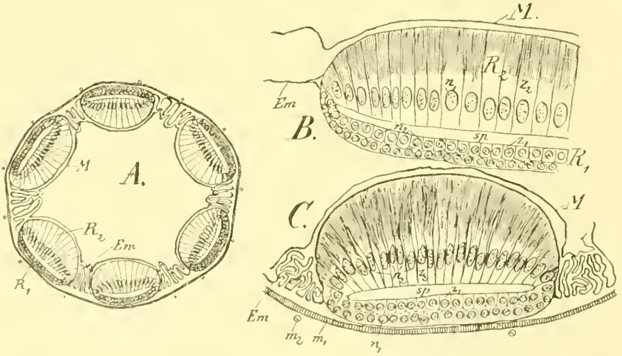


Figure 1. Drawing showing a magnified section of the rectum and of the 6 glands. Rectal glands of the honeybee. Dr. Bdunnich (original.)

- *a.* Transversal section of the rectum.
- *b.* Longitudinal section of one of the six glands.
- *c.* Transversal section of one of the glands.
- *r-1.* External layer of a gland.
- *r 2.* Internal layer of a gland.
- *sp.* Space between the two systems of the gland.
- *em.* Epithelial membrane of the rectum
- *z.* Cells of the gland.
- *n.* Nuclei of the gland cells
- *m-1, m-2.* Annular and longitudinal muscles.
- *m.* Peritrophic membrane.

The rectal glands consist of two series of cells, *r-1* and *r-2*, which probably have each secretory functions. Both enclose a slit-shaped long room, *sp.* I suppose that the glands execute a double filtration of the blood serum. The latter penetrates across the cells, *z-1*, into the mentioned space, and from there across the larger cells, *z-2*, into the free room of the rectum. The second system of the glands resembles much the wax-glands.

shortens the yield and weakens the population or leads to swarming.

With the carrying about of honey the busy creatures fulfill another important task. When the bee is licking up nectar or honey there always flows a little portion of a secretion of most useful albuminous ferments and probably formic acid. Both cause the inversion of the indigestible cane sugar into fruit sugar and grape sugar. Cane sugar cannot be assimilated at once by the stomach, while its components may immediately enter into the blood, where they produce the warmth of the blood and strengthen the muscles. Honey, as a food, not only spares to the stomach a considerable digestive work, but gives to the organism albumin and important aromatic substances, with stimulating and antiseptic qualities. Formic acid is a mighty antiseptic and has a most favorable fortifying influence upon the musculature of the heart.

When the honey is ripe, which happens in 4 to 8 days, the bees place it where they wish to have it definitely—around and above the brood-nest. There the thick liquid is corked up by shutting the cell with an artful cover of wax; the honey is capped. Now the honeycomb represents a more or less plane surface on both sides, so that the bees can easily walk there without smearing their feet. Jealously the little amazons watch these precious provisions, and they do not open the cells before they absolutely need food. So nobody is astonished when a populace which before was good-hearted at once becomes ill-humored and readily uses its weapons, if man has taken from them a part of their treasures. After the honey crop, the bees do not stand trifling. The experienced man knows how to treat them and willingly gives them, after the crop, part of the stolen goods, that his darlings may not suffer of hunger till the new honey season begins.

Reuchenette, Switzerland.

## Mating Queens Over Colonies

Mr. Frank C. Pellett:

Dear Sir—In the American Bee Journal, 1917, page 344, we were favored with an article from you on "Increase With Little Cost." This method appealing to me, I tried it out in one of my outyards the past season, with no success.

Recently, on reviewing Gleanings for 1914, I find, on page 285, that Dr. Miller had tried to raise some queens over a colony with a laying queen, but failed. Editor Root's comment on Dr. Miller' "straw" stated that Mr. Doolittle had met with some success in getting queens mated in an upper story of a queen-right colony, but usually it proved a failure.

On page 796, Gleanings, 1914, Mr. Chadwick gave the result of his attempt at this stunt which was almost a complete failure on 75 colonies.

Just recently I received a copy of your "Practical Queen Rearing" and I find the identical plan which you proposed in the American Bee Journal in 1917.

In my own yard I tried it with about 50 colonies. Each colony had from one to three extracting supers on, and the brood was put above the supers with a wood-zinc excluder between the supers and the hive-body **below** containing the old queen.

In some cases, cells were started in the original brood-chamber before putting above. In other cases there were no cells when making the change, but in almost every instance cells were started and completed above. But here is where the "rub" comes—not a single queen got to laying above.

The entrance to the brood-chamber above was made in a half-inch rim between it and the immediate super below.

No doubt this method is a success with you, and I should feel much pleased if you could show me why I, as well as these other gentlemen have met with such dismal failure.

INDIANA.

Answer—As nearly as I can guess, the reason for failure in all cases reported to me is either having the upper entrance too near the one below, or the lack of a ripe queen cell. If a newly formed cell is given all the brood will emerge from the upper brood-nest before the young queen is ready to lay. I make a practice of starting a batch of cells in advance of the time when the brood is to be raised above the excluder. A ripe cell is always given the day following the raising of the brood and the young queen should emerge the second day after. If weather conditions are favorable the young queen should be mated and ready to lay before the brood has all emerged. With sealed brood present the young queen does not hesitate to begin laying in a normal manner. If no brood is present she is likely to make an effort to reach the brood-nest of the old queen below the excluder and be lost in the attempt.

The entrance to the upper brood-nest should be on the opposite side of the hive from the one in the lower body. Otherwise the young queen is likely to enter the lower story with the old queen on her return from her mating flight.—F. C. P.

## The Sense Organs of the Bees

By Terrisse Trelex, in the Bulletin Suisse for October, 1918

HONEYBEES have exceedingly acute organs of smell; they also have an excellent memory, and in addition are very skillful in taking note of guiding marks.

It is through memory and the observation of guiding marks that they succeed so well in finding their way back to the hive. They depend upon this almost exclusively. It is through the ambiance or environment of their home, more than by its particular color that they recognize it, and the proof lies in the ease with which we deceive them by placing another similar hive in the location of their own, when making artificial swarms. One might almost say that, apart from the attractiveness of appearance, it is of little use to paint hives of different colors, in an apiary.

It has been said with reason that it is less the difference in the tints than the difference in brilliancy which impresses itself upon the eyesight of our insects.

Bees see, but in a different manner from ourselves. In a general way, we must take notice that man reasons and rectifies his impressions through his reasoning, while the animal does not reason, or at least very little. A horse, for instance, does not see correctly, because reasoning is lacking in him. He will shy at a shadow across the dusty road, at a piece of white paper, at a lump of dirt, all things that he should consider as very common. But in the eyesight of the bee there is an essential difference with the behavior of our own eye. She does not leave her occupations when we suddenly uncover the combs; the passing suddenly from darkness to blinding daylight does not annoy her; but she

The house in the picture is so white that the photograph does not even delineate the crest of the roof from the sky. But the stove-pipe, in the upper right-hand corner, shows plainly where that line is. The roof is flat, terrace-shaped. The location is Djebel-Djelloud, a suburb of Tunis, and belongs to Mr. Andre Terrisse, brother of the writer of the article.

may be irritated by the sudden current of air or by the cold which exposes her brood to danger.

Here is a fact which proves that bees are not directed by the tint so much as by the **glare** of colored objects; for the glare may be similar when, to our eye, the colors are dissimilar.

I had an apiary in Tunis, where, from May till November, under a blazing sun, the sky remains relentlessly blue, and where the houses are exceedingly white, being every year bleached with lime.

Several of my hives were separated from the watering spot by a long building, a shed whitewashed with lime. Two years successively I noticed, especially at the time of active brood-rearing, March and April, that the workers, in their numerous trips to the water, often failed to go around or fly over the shed; at the exit of their hives they would fly towards the water, at ordinary height, and would strike violently against the white wall; many not being able to rise again, but dying on the spot. Others perished in a similar way upon their return home from the water.

Evidently they were deceived by the similar **glare**, and made no distinction between the white wall and the blue sky, a distinction which is easy to the human eye.

The number of bees which died in this way was so great that I finally removed the apiary from this spot, although in other respects the spot was satisfactory.

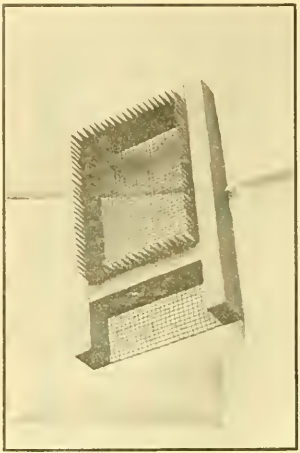
(This is very interesting. Many people have noticed what this writer mentions—as to the indifference of the bees to the uncovering of their brood-combs, if it is done without jar. They will even fly to the field, from this opening, as if it were the usual way of exit. But let a quick motion be made over this opening by the apiarist, and perhaps dozens of bees will fly at him to punish him for his daring.—Editor.)

## Shipment of Pound Package Bees to the Kootenays in 1918

By W. J. Sheppard

THE importation of bees in pound packages from the United States to the Kootenays, British Columbia, came to a sudden stop early in the season of 1918, owing, it is stated, to the transportation companies declining to undertake to convey them by the most direct route, probably owing to the conditions prevailing on account of the war.

The first large shipment from California, consisting of 58 two-pound packages, arrived in Nelson on April 21. Instead of coming in via Portland and Spokane on the Great Northern, the quickest route, only taking from three to four days, the way the consignor stated he routed them, they came round by Vancouver, thus causing a delay of several days. Owing to this they were in very bad shape on arrival in Nelson, 17 of the packages being all dead, 24 about half dead, and the remaining 17 only in fair condition. As they had another 80 miles to travel after reaching Nelson, and had unfortunately missed the connection, they had to remain over at the depot for a further period of two days. The 41 lots that contained living bees were fed two or three times with syrup before being re-shipped, which kept them alive until they reached their final destination. After being put into hives they were each given 2 five-pound cans of syrup and then had to be left to take care of themselves. In spite of this and the bad condition they were in on arrival many of those 41 lots have built up into fairly respectable colonies, although they had only two frames of comb to start with and had to draw out foundation. The dandelions, which were very numerous in the locality, helped them considerably, and they are also situated in a good clover district.


Smith's Push-in introducing cage.

On being informed as to the delay and the state in which this shipment arrived, the consignor sent word that he would not ship any more bees to British Columbia under the existing conditions.

Now that the new postal regulations in the United States will permit bees in combless packages to be carried through the mails, there will doubtless be less risk of delay than if shipped by express. The Postmaster General for Canada having just intimated that his department is making arrangements to admit living bees to the Canadian Inland Parcels Post and will shortly issue instructions on the subject, the beekeepers here are looking forward to being able to obtain the package bees by this means in 1919.

In 1916 and 1917 many of the two-pound packages shipped into the Kootenays from the United States gave a surplus of 100 pounds and over per colony the first season.

The writer having had many opportunities of examining these bees on arriving at their destination, in the past, believes that if they were sent out supplied with a larger quantity of food they would stand a much better chance of coming through in good shape and a few days delay would not then so much signify.

Nelson, B. C.

## A Safe Introducing Cage

THE question of safe introduction of valuable queens is always before us. Most of the methods which are known to be dependable under all conditions require more or less of trouble and time to put them into effect. Probably no one is so constantly reminded of the necessity of improvement in methods of introduction as the queen breeder. The success of his business largely depends upon the success with which his customers are able to introduce the queens which he sells. The many foreign odors acquired by a queen-cage in its journey through the mails adds to the normal difficulty of introducing a strange queen into a new colony.

It is a well-known fact that where the queen is introduced by means of a "push-in" cage which covers a small amount of brood-comb in which she may begin laying, before being released, she is seldom lost. With this idea in mind, Jay Smith, a well-known Indiana queen breeder, has devised a cage which is used in connection with the ordinary mailing cage. One of the illustrating pictures shows the details of his push-in cage, while the other shows how it is used by removing the cover to the opening in one end of the mailing cage. This permits the queen and the bees which accompany her to enter the other cage which is pushed into the comb. She has thus a small amount or brood-comb available ,but the hive bees cannot reach her until she has acquired the hive odor and has begun laying. After a few days the cage can be carefully removed and the frame replaced in the hive with very little danger to the queen. The difficulty with most of the push-in cages is in getting the queen into them. Mr. Smith has solved this problem very nicely, as will readily be seen.

## My Experience With European Foulbrood

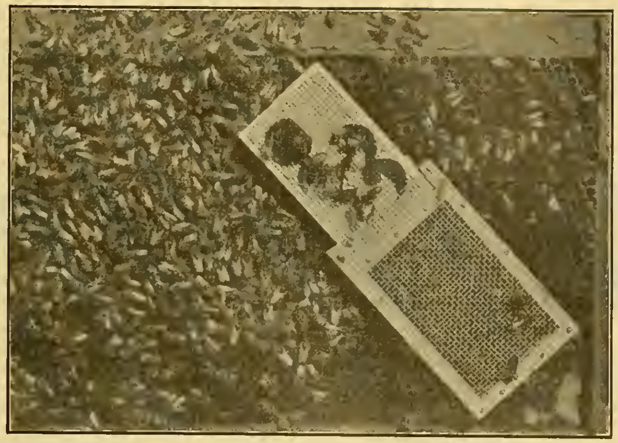
By Frank Coverdale

NINETEEN-SEVENTEEN was a very poor honey season, making it a very hard task to fight disease. Many colonies were so weakened that by June 1, 1918, nearly half of 300 colonies were finished. It looked to me that I was just going out of business, and more than once I thought to quit and be done. Then I would think how the Cogshalls had made good in spite of what they called black brood, and the great stress they put on salting their bees. In the spring of 1918 all that was left had no bad brood until the last of May, and all built up well. In June the disease broke out here and there all over the yard. The first thing I did was to get a half barrel, filled with water. I stirred enough salt to make the water taste just about as salty as one would like gravy. I placed some floats on this water and a comb of honey laid on the floats and in a short time thousands of bees were carrying the salted water. This was kept up by them all season. One of my neighbors came in the yard with an extra queen that he had just had sent in from the south. I said "give her to me; I will put her into this colony as an experiment." This colony had a bad case but was not weak yet. It proved to be the end of the disease in that colony, and it built up rapidly and began to store above. This induced me to send south for 25 more, and all were used where disease was found, or where black or hybrid stock was present. In all cases but one the cure was perfected. These queens were introduced as directed on cages. In other cases cells from what appeared to be immune Italian stock were given with equal results. I believe that the salted water was of itself a great benefit, as very much less brood appeared to be dead, and more time was afforded to get in stock that was immune. One thing I found for sure was, that it is not good policy to tolerate any weak colonies of any stock, as such will be affected. I believe it possible that where bees have been allowed to become inbred for years that a low state of vitality exists, and that such colonies are good ground for European foulbrood. That is just the way it looked in my yard; and that black bees must not be tolerated at all, if one wishes to stay in the business of raising honey. I know that it skipped all around good Italian stocks and thrived upon black and hybrids.

To find the affected colonies would be quite a big job if every hive is to be opened. Just walk down each row and notice very carefully the colonies losing energy, with less working force. That is the way I did it. It was a rare case that I missed my patient when a batch of queens would come as a lot of ripe cells were ready.

I am very happy to be able to say that I have in my yard 250 of the best stocks of bees that I have ever owned, and I never had a stronger lot of bees, and that when spring comes I will supply plenty of salt and proceed as above. When I look the situation over I am reminded of what Alexander said, "A blessing in disguise."

Delmar, Iowa.


Jay Smith's introducing cage as used in connection with a shipping cage.

## Shall We Prohibit Spraying While Trees Are in Bloom?

SEVERAL letters have come to my desk of late which have to do with the poisoning of bees from the spraying of fruit trees while in bloom. In New Mexico it seems that a bill is pending in the legislature which provides a penalty for the application of spray poisons to the fruit trees before 90 per cent of the blossoms have fallen. A few States have passed similar laws and several others, after considering such measures, have refused to enact them.

At one time I used my influence for the passage of such a bill, in Iowa, although I must confess that I was not enthusiastically in favor of it. Since that time I have investigated the matter somewhat and now doubt whether such laws are desirable. Here in America we have come to look upon "laws" as the cure for every ill. Every day we hear somebody say that there should be a law passed prohibiting this or that. Perhaps we will learn in time that the mere passage of a law does not always remedy our troubles.

In the case of spraying, so many beekeepers report the loss of bees from the spraying of fruit trees while in bloom, that there must be some cause for complaint. However, it seems to me, after looking into the thing, that a law is not the proper remedy. In the first place, the passage of such a law is resented by the fruit growers as being aimed especially at them. Instead of developing harmonious action, it has the opposite effect. The interests of the fruit grower and of the beekeeper are mutual. It is recognized that bees are necessary to insure proper pollination of fruit blossoms. It is also taught by most entomologists and horticulturists that the best time to spray is after the petals have fallen. Not only may the bees be poisoned, but the fertilization of the blossoms may be retarded or to some extent prevented by spraying before that time.

This being the case, what we need is not a law punishing the man who reduces his own crop and kills his neighbor's bees, by improper spraying, but an educational campaign to give proper instruction in the application of the poison.

The fruit growers are as anxious to teach the mass of small orchardists to use spraying materials, as the beekeepers are to induce every beeman to treat foulbrood. The enactment of a law prohibiting spraying at any time may easily discourage its being done at all. In this case the fruit business has been injured.

There are few fruit growers progressive enough to spray their fruit trees, who will be purposely disposed to injure the bees on which they depend as an agency in the fertilization of their fruit. Instead of trying to force through a law against spraying while the trees are in bloom, the beemen and fruit growers should meet and agree upon a campaign of education in districts where spraying is improperly done. Such a campaign will result in great benefit to both the fruit grower and the beekeeper and should leave both with the best of feelings toward the other.

When, as sometimes happens, the legislative committees ask for definite proof of the injury to bees from this cause, the beekeepers find it difficult to prove their case. Our senior editor once served as a member of an Illinois delegation to appear in behalf of such a measure. The chairman of the legislative committee was an extensive orchardist who seemed disposed to be very fair in the matter. He asked for proof of injury to the beekeeper, and when an attempt was made to furnish specific cases which could be laid to this cause, the beekeepers were unable to find them. We are a little in the dark as to just how much the bees are injured from this cause, and here is a place where our experiment stations can render some real service to both fruit growers and beekeepers by making extensive and careful tests as to the extent of injury, time when bees are poisoned, and also in searching for a remedy. Judge Taylor, of Yakima, Wash., suggests that since the arsenate of lead is said to be sweet, the bees may be attracted to it at times when the trees are not in bloom. He also suggests the possibility of adding to the spray some repellent which is obnoxious to the bees and thus prevent them from taking it at any time.

From Washington comes the report that the greatest loss is not at the time when the trees are in full bloom, but during the subsequent spraying for the second and third broods of codling moth. The injury seems to be worse in dry sections, where water is not easily available, which indicates that the bees, in search of water for brood-rearing, at times, suck up the newly applied poison.

Until we have more definite information on which to base our demands for legal protection let us appeal for help to the extension departments of our agricultural colleges in spreading information, and from the experiment stations in ascertaining the true conditions.—F. C. P.

# MISCELLANEOUS NEWS ITEMS

### Illinois River Valley Beekeepers to Meet

The annual meeting of the Illinois River Valley Beekeepers' Association will be held in Pekin, Illinois, February 7.

### Necrology

We regret to announce the death of Mr. O. A. Comire, Secretary of the French Association of Beekeepers of the Province of Quebec, Mr. Comire was a young man, very active, and working strenuously for the advancement of the Association. He leaves a young wife and 4 small children. He died of heart trouble.

### The National

The forty-ninth annual convention of the National Beekeepers' Association will be held at the Hotel La Salle, in Chicago, February 18, 19 and 20, 1919. The Chicago-Northwestern Beekeepers' Association will hold a business session at the same place during the day February 18, and then join with the National meeting.

Following is the program as arranged to date, but may have more numbers added:

Tuesday, Feb. 18—7:30 p. m.
President's address, minutes of last meeting and report of the secretary-Treasurer. Appointment of committees.
"Past, Present and Future of Beekeeping" ---------------- E. R. Root
Wednesday, Feb. 19—9 a. m.
"Beekeeping and the New Era" Prof. Francis Jager
"A New Organization of Beekeepers" ------------ Colin P. Campbell
Questions
1:30 p. m.
E. D. Townsend—Topic not decided.
"Factors Influencing the Secretion of Nectar" ------ Dr. E. F. Phillips
Questions
7:30 p. m.
"Beekeeping as seen by a Bee Inspector ------ Prof. F. Eric Millen
"Organization" ------Chas. B. Justice
Questions
Thursday, Feb. 20, 9 a. m.
"Beekeeping in Dixie" Kenneth Hawkins
"Organizing Local Societies Prof. H. F. Wilson
Questions
1:30 p. m.
"International Beekeeping" C. P. Dadant
Prof. E. G. Baldwin—Subject to be selected.
Election of officers and reports of committees.

### Extension Work in Texas

The Extension Department of the Texas Agricultural College is lending assistance to the beekeepers of that State and co-operating with the various organizations. Mr. H. B. Parks, formerly of the University of Missouri, is in the field as special beekeeping worker. Mr. Parks frequently assists in the development of county organizations, which in turn co-operate with the office of the State Entomologist in the inspection work. There is much call for work of this kind and Mr. Parks finds his time well occupied.

### Program of Short Course for Beekeeping in the New York State College of Agriculture, Ithaca, N. Y., February 24-March 1, 1919.

**Monday**

10 to 12 a. m—Meet for organization in Room 392, Roberts' Hall.

1 p. m.—Introductory talk by J. G. Needham. The Outlook, by Geo. H. Rea.

1:30 p. m.—Fundamentals of Bee Behavior Outside the Active Season, by Dr. E. F. Phillips.

3 p. m.—Fundamentals of Beekeeping Practice Outside the Active Season, by Geo. S. Demuth.

**Tuesday**

9 a. m.—Fundamentals of Bee Behavior Outside the Active Season (for outside wintering), by Dr. E. F. Phillips.

10:30 a. m.—Fundamentals of Beekeeping Outside the Active Season (for outdoor wintering), by G. S. Demuth.

1 p. m.—Outdoor Wintering, by A. Gerdon Dye. Queen Rearing, by Geo. H. Rea. Breeding Bees, by Geo. B Howe.

**Wednesday**

9 a. m.—Fundamentals of Bee Behavior Outside the Active Season (for cellar wintering), by Dr. E. F. Phillips.

10:30 a. m.—Fundamentals of Beekeeping Practice Outside the Active Season (for cellar wintering), by Geo. S. Demuth.

1 p. m.—Introductory Remarks, by G. W. Herrick.

1:15—p. m.—Wintering as Practiced in New York, by Geo. H. Rea.

2:30 p. m.—O. L. Hershiser.

3:30 p. m.—Wintering, by S. D. House.

7:30 p. m.—Evolution of Beekeeping Practice in the United States (illustrated), by Geo. S. Demuth.

**Thursday**

9 a. m.—Fundamentals of Bee Behavior During the Active Season, by Dr. E. F. Phillips.

10:30 a. m.—Fundamentals of Beekeeping Practice During the Active Season, by G. S. Demuth.

1 p. m.—Comb vs. Extracted Honey in New York State, by Geo. H. Rea.

2 p. m.—The Dadant System, by C. P. Dadant.

3 p. m.—The Past of Beekeeping, by E. R. Root.

**Friday**

9 a. m.—Fundamentals of Bee Behavior During the Active Season, by Dr. E. F. Phillips.

10:30 a. m.—Fundamentals of Beekeeping Practice During the Active Season, by G. S. Demuth.

1 p. m.—Factors Influencing Nectar Secretion, by Dr. E. F. Phillips.

2:30 p. m.—Locality, by G. S. Demuth.

4 p. m—Obtaining the Maximum crop in New York, by Geo. H. Rea.

7:30 p. m.—Beekeeping in the United States (ilustrated), by Dr. E. F. Phillips.

**Saturday**

8 a. m. to 12 m.—Diagnosis and Treatment of Bee Diseases, by Dr. E. F. Phillips.

10:30 a. m.—Bee Diseases in New York State, by Geo. H. Rea.

11 a. m.—The Future of Beekeeping, by E. R. Root.

### Chicago Northwestern Association

The Chicago Northwestern Association will hold their annual meeting at the La Salle Hotel, Chicago, February 18, 1919. The following speakers expect to be present:

Dr. E. F. Phillips—"The Control of European Foulbrood."

C. P. Dadant—"Honey Manufacture."

Edward Hassinger, Jr.—"Building an Effective Windbreak with Cornstalks and Woven Wire Fence."

Miss Iona Fowls, Assistant Editor of Gleanings, in Bee Culture, expects to be present, but has not announced her subject yet. We expect some other speakers, but have not heard from them definitely. We will have just two sessions during the day, as the National will start their meeting the evening of the 18th. By holding a joint meeting any beekeeper can well afford to attend both.

JOHN C. BULL, Sec.-Treas.

### Ontario County Beekeepers to Meet

The Secretary, Mr. F. Greiner, writes to announce that the next meeting of Ontario County, New York Beekeepers' Society will be held at the court house in Canandaigua, on February 11, 1919.

### Bees at Kansas Agricultural College

Dr. Merrill has arranged for a series of beekeeping lectures at the Kansas College during Farm and Home Week, to be held at Manhattan, February 3 to 8. Doctors Merrill and Tanquary, of the college, will speak and several of the Kansas beekeepers will assist them with the program. We note that C. D. Mize, J. A.

Nininger, Roy Bunger, Harry A. Huff, L. V. Rhine and C. A. Baxter are among the number.

### Obituary

We are sorry to announce the death on the 29th of December, at Oakland, Calif., of W. A. Pryal, the well-known beekeeper and writer. Mr. Pryal was a constant contributor to the American Bee Journal, the last article from his pen having been published in the December number, page 405.

Mr. Pryal, we are told, was sick about six weeks, but his demise was altogether unexpected, as he was only 62 years old and still in his prime.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

### Miscellaneous Questions

1. How many trips will it take for a bee to fill a cell with honey, on an average?

2. Is it best to requeen in spring, or fall?

3. When I try to unite weak colonies they kill out one or the other. How shall I prevent it?

5. Is it best to have a cloth between cover and top of frames here in the warm climate of southwest Texas?

6. Will it pay to use queen excluders on all hives, and which is best, zinc, wire or wood?

7. I have 21 colonies and have bought four Italian queens. Now, can I Italianize my small apiary next spring from queen cells from these 4 hives, or even one of the best ones? TEXAS.

ANSWERS.—1. I don't know. It has been estimated that in order to carry in a pound of nectar, 20,000 trips would have to be made.

2. Perhaps in fall, as a rule, or rather about the close of the honey-flow. Yet, if one were requeening for the sake of getting in new stock, it would hardly be advisable to wait till the fall of next year, but rather to act in the spring.

3. One way is to take empty hives and put into it the frames with adhering bees from each hive alternately. Perhaps a better way is to put over the top-bars of one of the hives a sheet of newspaper and set over this the other hive, allowing the bees to gnaw a hole through the paper and unite at their leisure.

4. Strictly speaking, a division board is one which closes one part of the hive from another, not allowing bees to pass. It is of use to separate the hive into two parts when you want to have two or more nuclei in one hive, or when you want to confine a colony to a smaller space. If the board is small enough to allow the bees to pass on all sides, it is called a dummy. It may be used at any time to fill up vacant space, but is perhaps chiefly useful at one side of the hive to make it easier to take out the first comb.

5. It depends upon the space above top.-bars If it is more than about a quarter of an inch, then it is better to have cloth, so as to prevent combs being built in the space. I should prefer to have only beespace above the frames, so as to do without the cloth.

6. For section honey I never used excluders, but most beekeepers use them for extracting. Wire excluders are probably best.

7. Yes, indeed; if you had 100 colonies you could requeen all from one queen.

### Wintering Bees in a Small Building

I have five colonies which I am thinking of wintering in a small building. Do you think the colonies could be safely stacked on one another?

If the door was left open on warm days, would the bees be apt to mark their new location and make their flights in safety, or would it be the best plan to have them shut up until early spring?

What would be the best time in spring to remove them? ILLINOIS.

ANSWER.—The stacking on one another is all right, but wintering in a building above ground is not much in favor if there is no direct opening to allow the bees to fly whenever the weather favors. Still, with only five colonies, it may be that they can be near the door, facing outward, so that when the door is opened they will be about the same as out of the building. But if they are where they will be partly in the dark, even when the door is opened, then it may be better to leave them until a warm day in March or April. But if it keeps down to about freezing in such a room, then they might better be outdoors.

### Confining Foulbrood Bees

1. I have a few colonies of bees with American foulbrood to be treated when the proper time arrives. I propose to shake bees on frames with full sheets of foundation and confine them two or three days, thus compelling them to consume every bit of foulbrood honey which may be in their honey sacs.

Do you think my plan is a good one? If not, what objections would you have? ONTARIO.

ANSWER.—If I understand correctly, your departure from the usual plan of shaking or brushing is that instead of leaving the bees to fly you will confine them in the hive, your idea being that they will use up all the bad honey in their sacs before they fly. I don't know for sure, but I don't believe you'll like the plan. As long as they will use up the honey in their sacs anyhow, what will you gain by an irritating imprisonment? Not being in a very happy frame of mind, it would not be surprising if they should swarm out when freed.

### Wintering—Colony Without Queen for Winter

1. On page 350, October American Bee Journal, column 2, answer 2, you say later on you will crowd them to one story. Why not (if they were to be united on their summer stands) leave them in two stories?

2. I believe you use honey in hot drinks, do you think the heat kills those little germs that you tell us live in honey; I believe you call them vitamins?

3. We are told to put something over the top-bars of the frames in covering our bees for winter, so that the bees climb over from one comb to another. How do they get over in a tree or other places where no man interferes?

4. I found a dead queen on the alighting-board November 10. Would you try to give that colony a new one as late in the season as this, or will the bees live until spring and accept of a new one then, and will those old bees care for brood at this time? NEBRASKA.

ANSWERS.—1. But they are not to be left on their summer stands, for they are to be—rather have been—carried into the cellar. If they were to be left on their summer stands it might do to have them left in two stories; but the point I was making is that one story is enough to hold them.

2. I don't know, but it is possible the vitamins are destroyed by heat. Still there is left the advantage that no inversion of sugar in the honey is needed, it being already inverted, and also the advantage of the minerals in honey that are entirely wanting in ordinary sugar.

3. I'm not greatly interested in what bees do in trees, for my bees are not in trees. Indeed, I am not interested in putting anything over top-bars to allow the bees to pass over, for my bees have ample opportunity to pass from one comb to another, since the hives are taken into cellar just as they were on their summer stands, there being always a bee-space between top-bars and hive-covers. If bees in trees cannot easily pass from one comb to another, so much the worse for the bees in trees. It isn't always best to follow nature too closely; our chickens are better off in a good hen-house than roosting in trees in zero weather. I think, however, that when bees build combs in trees you will generally find that they leave plenty of chances for getting from one comb to another, not always at top, but a little farther down, which is perhaps better.

4. I think I would let them alone till spring. It is not certain they are queenless, but entirely possible that the dead queen has been superseded by one of her daughters.

### Nuclei for Queen Rearing

I wish to rear my own queens. I propose to rear them in 2-frame nuclei, that is to say, from each colony I will take two frames of bees and brood, giving to same a ripe cell from approved stock.

What I want to know is, can I keep such small colonies on two frames from, say second week of July to about first week of September, without them swarming out?

Describe the simplest way to return the two combs of bees an brood to the hive from whence they were taken.

You see, my objct is to requeen, but I want to do it after the harvest is over, so I will have more time and also not interfere with the honey crop.

What worries me is the bees of the small nuclei returning to their old locations, and the possibility of starting an offensive, when returning the two combs of bees, brood and queens to old parent stock. ONTARIO.

ANSWER.—If from a normal colony you take two frames of brood with adhering bees, and put them in a hive on a new stand, you will find in a few days some of the brood neglected because there are too few bees to cover it, if, indeed, the whole of the bees have not stampeded. If you imprison the bees for about three days, there may be no trouble. Queenless bees will stay where they are put better than queenright ones. The larger the number of bees in a nucleus the better they will stay in a new place. If you are going to make a number of nuclei at one time, a good way is to put on one stand all the frames you are going to use, together with their adhering bees, if necessary piling them two stories or more high. With each pair of combs better brush into the hive the bees from another comb. No need to imprison the bees. In 3 or 4 days distribute the combs to their respective places, and if you have been liberal in the amount of bees there will be no serious trouble from returning bees.

If you try to keep each nucleus restricted to two frames, there is likely to be swarming galore. But if you give them room enough there will be no trouble.

The simplest way to return the nuclei later in the season to the hives from which they were taken is to return them. There should be no danger of fighting. But will you want thus to return them? At the time you took two frames from each colony, of course you replaced them with other frames, and it will not be advisable to disturb them later. Better unite the nuclei to make one or more strong colonies.

(The queens may be introduced in the usual way.—Editor.)

### Good Locations—Package Bees

1. Where do you think would be the best

place to locate to start a bee and poultry farm?

2. Do you know anything about the eastern country—Maine, New Hampshire, Vermont, New Jersey, New York—such as advertised so cheaply by the Strout Land Company?

3. How does one manage bees that are bought in pound packages? Do you have to have full-drawn combs for them to start working on, or would they start on full-sheets of brood foundation? IOWA.

ANSWERS.—1. I don't know. Some places are very much better than others for bees because of unusual pasturage, but when you find an unusual locality for bees you will find an unusual number of bees already located there. In the majority of cases it is probably true that a man will do as well at beekeeping right where he is as to hunt up some new locality.

(There is excellent bee country within a hundred miles of Fairbank, Ia., possibly within sight of it.—F. . P.)

2. I am not informed. (There are in most cases serious drawbacks which account for the low price of the land.—F. C. P.)

3. In the great majority of cases a queen is bought with a package of bees, and the bees may be treated just as a swarm of bees would be treated. They may be put in a hive with neither comb nor foundation, although in that case there is danger of their swarming out; they may have drawn combs given, which is probably the best thing, or they may be put upon full sheets of foundation, and this last is probably the usual treatment. When convenient it is quite common to give them a frame of brood.

## Queen Rearing

1. What instruction can you give me about raising queens?

2. How may I be certain of mating an Italian queen with an Italian drone?

3. Have you the Italian queens for sale? ALABAMA.

ANSWERS.—1. It would take a whole book to give you very full instruction about rearing queens, and there is hardly room for that here. But Frank C. Pellett has written such a book, which is fully up-to-date, "Practical Queen-Rearing."

2. That is a difficult thing. Here's one way you might try: Take into the cellar the hive containing the virgin and the drones, and take it out after too late in the day for virgins and drones to fly, say 4 o'clock. Give them feed to help excite to flight. You may succeed and you may not.

3. Either the publishers of this journal or its advertisers can furnish you with Italian queens.

## Foundation Fastener—Glass in Supers

1. Would you recommend the Daisy Foundation Fastener in beekeeping? Could it be used in fastening foundation to brood-frames, or is it merely wired in the frames.

2. Is it a good idea to have glass in one end of comb-honey supers to see when they are filled and save the trouble of opening at the top of the hive? I have not seen any supers advertised having any glass in them, and as I am only a beginner in bee-keeping, would appreciate your advice on these subjects very much. ILLINOIS.

ANSWERS.—1. It is a good tool for a beginner to use in fastening foundation in sections, but not at all adapted for brood-frames.

2. Fifty years or more ago glass was used, but nowadays it is as easy with present arrangements to see without the glass, and you can get a more satisfactory understanding of conditions without the glass than with it.

## Shaking—Uniting Caged Queen

1. Will you give me the best way to shake bees, to prevent swarming, and build up the colonies good and strong.

2. How can we unite the weak colonies when we have two queens and two hives of full stores and brood-combs? They will need the honey from both hives. How can we put it all in one hive?

3. How long can a new queen be kept, after receiving, before placing in the hive? SOUTH DAKOTA.

ANSWERS.—1. I'm not sure what you mean by "the best way to shake bees," but think you may mean to shake a swarm, which some people are illiterate enough to call "shook-swarming." This shake-swarming is merely anticipating natural swarming by operating a little before the bees would swarm naturally. Take away from the colony all but one of its brood-combs with adhering bees (being sure not to take the queen), and put these in a new hive on a new stand, filling vacancies in each hive with full frames of foundation. Give the queenless bees a virgin or ripe queen-cell, or, better still, a young laying queen. In a fair season you ought to have two strong colonies for winter.

2. One of the best ways is to use the newspaper plan. Simply put over the brood-combs of one hive a sheet of newspaper, then set over this the other hive. The bees will gnaw a hole through the paper and gradually unite without any quarreling. Generally it is best to put the weaker over the stronger one. If there is any choice of queens, kill the poorer one; otherwise let the bees settle which shall be left. In 3 or 4 days, or any time later, at your convenience, put into the lower story any brood from above and the best frames of honey. If the honey from the other frame is needed, extract and feed back.

3. If kept in a warm place she ought easily to stand being imprisoned two weeks after the time she was caged, and probably she would generally stand twice as long. The shorter the better.

## Cellar Wintering

1. In wintering bees in a hot air furnace cellar the room in one corner is too cold the latter part of winter. The weather now is 32 degrees outside and 52 inside cellar. There is a chimney 8x12 inches inside by 40 feet high standing 10 feet from partition, and furnace about 4 feet from partition on other side. Would it benefit the bees to pipe the warm air from above the furnace into the bee cellar and connect another pipe from chimney into bee cellar? How would the pipes best be arranged—draw the cold air out of the bottom or top of cellar? There is quite a draft to the chimney. What size pipes would be necessary? Would such an arrangement cause continuous circulation of fresh warm air?

2. What do you think of the idea of furnishing water in some way to the bees for winter use? Has it ever been tried? WISCONSIN.

ANSWERS.—1. Without fuller particulars it is not easy to advise. If there is a door between the furnace room and the bee room, the easy thing would be to let the door be sufficiently open. Of course, both rooms would have to be dark. If there is no door, then you might make a 6-inch hole through the partition at the bottom, near the furnace, and another at the top. If the furnace room is dark, no pipe would be needed. If the furnace room is light, a 6-inch pipe could pass through the partition, having an elbow or two to shut off the light. It will increase the circulation to follow your suggestion and let a pipe run from the lower hole to the chimney.

2. In a dry cellar it might do good. I have tried it; but not with much success.

(I do not believe in it. Bees do not need water except to rear brood.—C. P. D.)

## Carniolans—Jumbo Hives

1. I would like to hear from Dr. Miller if he knows any good queen breeder that I could depend on as to pure stock and free from disease.

2. Can I put two queens into one hive only could it be arranged, by dummy board or queen excluder; or won't it work at all?

3. Don't you think that Italian queens could be raised in Carniolan hives by Carniolan bees. as they are better for cell builders? Last summer my Italian bees could hardly raise any queens, but Carniolans had very nice cells.

4. Would you advise to change from standard 10-frame Langstroth to Jumbo? I think they will give more trouble in manipulation. as I have 100 colonies in standard hives and run for extracted honey. WISCONSIN.

ANSWERS.—1. It is not the thing to mention any particular breeder in this department, but I think you will find that those who occupy the advertising department are reliable, and I refer you to that department.

2. If your idea is to give an extra queen so the two queens will lay more eggs to have more brood reared, you'll find it will not work. For no matter how many nurses you might have, no more brood can be reared than the bees can cover, and one queen can lay all the eggs a strong colony can care for. But some have reported success by putting a weak colony over a strong one in spring with an excluder between the two, the weak one having the benefit of the heat from the strong one below.

3. Yes; if you unqueen a Carniolan colony, and then in 8 days kill all queen cells and give a frame of young brood from an Italian colony, you will find the Carniolan bees will raise cells on the brood given just as if it was their own brood.

4. Before making any wholesale change it might be well for you to try a few to see how it pans out.

## Sections—Brood—Requeening

1. I have several supers of sections with partly drawn combs which are cracking. I haven't any warm place to keep them. Would they be all right to use next year?

2. When a colony is given an extra body for brood rearing, what is done with the brood when it is taken off?

3. When is the best time to requeen, before or after the honey flow? MICHIGAN.

ANSWERS.—1 They will do if no honey is in them. If they contain honey they are not likely to make first-class sections.

2. They may be used to help weak colonies, or to make new colonies.

3. Unless queens are failing it is better to wait till the flow is nearly over. To requeen before will check egg laying at a critical time.

## Paste for Tin—Propolis

I would like to know what kind of paste to use to paste labels on tin pails, and is propolis of any value? If so, what is it used for? I have tried every kind of paste I could get, but I fail to make anything stick over night. MICHIGAN

ANSWER.—I am going to ask the wise ones at Hamilton to give the latest on this point. I use 5-pound pails and have no difficulty by using labels that reach clear around the pail and lap an inch or so, using common flour paste.

(The addition of a little honey or sugar when boiling the paste will make it stick more readily.

Propolis has been used to some extent in the manufacture of leather polishes. It is claimed to be superior to resin for this purpose.—Ed.)

## Winter Feed

1. In which is the most food value for bees, a pound of sugar or a pound of honey?

2. Would two large frames of honey keep a swarm of bees till spring. MINNESOTA.

ANSWERS.—1. In actual practice they are counted equal.

2. They might till *early* spring, in a good cellar. As a general proposition, I should say no.

(It is best to provide more feed than needed than risk a short supply.—Ed.)

### A Prolific Colony of Blacks

About the 25th of May I bought a colony of bees that were pure blacks. They were in an old hive about ready to tumble down, on home-made frames an inch shorter than the standard, and so solid that they could not be moved without tearing the hive to pieces. The bees were very strong and about ready to swarm. I took off one side of the hive and loosened the frames, which were well filled with sealed brood and honey. The old queen was killed and the brood divided in two parts and placed in two hives, each division being given an Italian queen. This was just at the beginning of dandelion. After the new queens had been laying about two weeks the brood was raised above an excluder in each case and the queens placed below with full sets of drawn combs. I extracted during the summer 295 pounds of alsike honey, and in the fall 80 pounds of aster honey from the two.

The queens kept the lower hive bodies full of brood all summer and the middle of August I took off the second stories of brood and made two swarms from each by giving queens. I now have six strong colonies with at least 40 pounds of honey in each hive, besides nearly four hundred pounds of surplus, all from one black colony bought at the beginning of the season.

My apiary averaged about 100 pounds per colony.

A. H. FAIRCHILD,
Bruno, Mich.

### Nebraska Locations

An Illinois reader writes to enquire about locations in Nebraska. Where sweet clover is well established, Nebraska offers some attractive openings. In the eastern part of the State there are many places where white and alsike clover are grown extensively by the farmers. In some counties sweet clover is also grown as a field crop. In such a neighborhood, where all clovers are present, the beekeeper has a favorable situation. Add to these the heartsease and other fall flowers to be found along the streams and failure is seldom reported. Sweet clover seems to reach its highest development in nectar secretion in Nebraska and surrounding States. It is important that a location be selected where the acreage of sweet clover and other plants is large enough to insure success.

### Winter and Bees

There seems to be quite a difference of opinions regarding wintering bees. I well remember reading what our late lamented friend, Doolittle, did by suspending a colony all winter, without bottom or top, and how well it came through the winter in his latitude. That reminds me of what I saw last winter in West Texas. A party of us were deer hunting in December and while traversing one of those mountain ranges I discovered a small colony of bees in a box, which had been placed on the stump of the tree they had been taken from. The box had nearly fallen to pieces with age and the weight of a heavy limestone rock for a cover. My curiosity prompted me to look in, as it was in an exposed place and the mercury close to the bottom. I lifted off the rock and instantly several infuriated bees came out and ran my companion away; but the sight that greeted my eyes made my mouth water, and I immediately got out my knife and sliced off a large piece of white comb honey. The cluster was in view and appeared full of life as they gradually loosened up around the bountiful supply they had on hand. At that time, in Austin, the weather was barely freezing and my honey had all granulated and away up on that cold mountain top was that colony of bees in first-class condition and the honey not candied. I was about converted to the idea of a good hive and it full of honey.

WALTER W. DURHAM,
Austin, Texas.

### Tobacco Honey

We are in a location where hundreds of acres of tobacco are raised every year. I have taken bees and placed them near the fields and they will store some honey from the plant some years. It is very dark, much like buckwheat in color, strong and very heavy body. Buckwheat is not my favorite honey, but I can eat it. Tobacco honey I cannot. It is very slow to granulate, and I have never seen it harden as other honeys will, even when well ripened and two years old.

W. K. ROCKWELL,
Bloomfield, Conn.

### The Wisconsin Meeting

The annual meeting of the Wisconsin Beekeepers' Association was held on December 5 and 6, at Madison, Wis., with five affiliated county branches participating.

Papers were read by Walter Diehneld, J. D. Millar, H. L. McMurry, A. C. F. Bartz, C. W. Aeppler, N. E. France, J. A. Warren, H. F. Wilson, Jim Cherf and C. P. Norgard.

Action was taken towards requesting some changes in the Wisconsin foulbrood law.

Officers elected for 1919 were as follows:

President—Gus Dittmer.
Vice President—Rev. J. E. Cook.
Secretary—H. F. Wilson.
Treasurer—A. C. Allen.

### Poison Ivy Again

In the December number of the American Bee Journal Dr. Bonney gives a prescription for poison ivy. In the case of my own family the following effected a cure of a bad case in 24 hours:

Take a hot flat-iron, just as hot as can possibly be borne, and apply to every bit of the affected portion. It must be applied to the bare skin, and no portion of the skin affected must be missed. Iron as you would clothes.

A. T. COPELAND,
Olalla, Wash.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

### BEES AND QUEENS

WANTED—Bees in lots of 5 to 50 or more colonies. J. F. Coyle. Penfield, Ill.

WANTED—50 to 100 hives of bees. Answer, Frank P. Blair, 1558 McCormick Bldg.. Chicago, Ill.

FOR SALE—8-frame nuclei with young untested Italian queen introduced, to be delivered after May 1; safe arrival guaranteed; one-third with order, balance first of April; $5 each. Irish Bros., Doctortown, Ga.

FOR SALE—Leather-colored Italian queens, tested, to June 1, $2; after $1.50; untested, $1; $10 per dozen. A. W. Yates, 15 Chapman St., Hartford, Conn.

GOLDEN ITALIAN QUEENS and bees; honey-getters, prolific and gentle. Bees by the pound. Write for prices. J. W. Rice, Box 64, Fort Smith, Ark.

FOR SALE—30 hives of black bees in 8 and 10-frame hives, new and painted; for bulk honey. $6.50 per hive. J. T. Collins, Ludowici, Ga.

WANTED—100 2-pound packages leather-colored bees; untested queen in each package. Make me an offer. Walter Anderson, R. 2, Box 36, Eau Claire, Wis.

GOLDENS that are true to name. Untested queens, $1; 6, $5; 12, $9; 50, $35; 100, $67.50. Garden City Apiaries, San Jose, Calif.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook, 1Atf 84 Cortland St., New York City.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1. J. F. Diemer, Liberty, Mo.

FOR SALE—From 1 to 100 strong colonies extra fine strain Italian bees, with winter stores; select tested queens in 1-story 8-frame single-wall hive, standard full depth self-spaced Hoffman frames; nearly all wired. If sold before January 1, $8 each; same colonies on frames without hives, $6 per colony. The bees are free from disease. F. o. b. here. Wilmer Clark, Earlville, Mad. Co., N. Y.

FOR SALE—3-banded Italian bees for sale in 1-lb. packages, 2-lb. packages with queens; bees that produced for N. A. Kimery, of Liberty, N. C ; $2,000 worth of red clover seed, first crop. The M. C. Silsbee Co., Avoca, N. Y., says: "Bees purchased of you last season produced better than $50 worth of honey per colony, 1918 crop." We refer you to above named parties regarding this statement. We breed strictly for honey-gathering qualities and beauty; last, but not least, for bardiness. We try to please our customers. Give your needs in first letter. H. B. Murray, Liberty, N. C.

QUEENS—Bees by the pound, 3-banded and Golden Italians. The best of either. They are hustlers, gentle, cap their honey white, are very resistent to European foulbrood. Now that peace has been declared, our boys will be home for service. We believe the express companies will be able to deliver promptly. So we are also quoting prices by express. Booking orders now, one-fourth down, balance at shipping time. By parcel post, prepaid, one 1-pound package, $2.90; 2-pound, $5; 3-pound, $7 By express, f. o. b. here, one 1-pound package, $2.40, 2-pound, $4.25; 3-pound, $6.25. Select untested queens, $1.50 each; tested, $2.50; select tested, $3 each; 10 per cent discount on orders amounting to 25 packages or more. Add price of queen wanted. Send for free circular giving details.
Nueces County Apiaries, Calallen, Texas.
E. B. Ault, Prop.

FOR SALE—Bees by the pound for early shipment; safe delivery guaranteed.
H. E. Graham, Gause, Texas.

FOR SALE—Italian queens and bees by the pound; early shipments; guaranteed safe arrival and no disease.
Brazos Valley Apiaries, Gause, Texas.

THREE-BANDED ITALIANS ONLY—Untested queens, each $1; 6, $5; 12, $9; 50, $35; 100, $67.50. H. G. Dunn,
The Willows, San Jose, Calif.

A NICE PACKAGE OF BEES—1-lb. package with untested Italian queen, $3.50; 2-lb. package with untested Italian queen, $4.50; 25 1-lb. packages or more (one order) with queens, $3 each; 25 2-lb packages or more (one order) with queens, $4.25 each. Reference, the Security Bank and Trust Co. of Wharton, Texas.
W. H. Moses, Lane City, Texas.

## HONEY AND BEESWAX

QUICK CASH for extracted and comb; send sample, or describe and say price.
Bruner, 3836 No. Kostner Ave., Chicago

WE are in the market for honey and beeswax. Send best price on comb honey and sample of extracted honey. State quantities you have, also style, size and weight of package or section. Charles Israel Bros.' Co., Inc.,
486-490 Canal St., New York.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

FOR SALE—Clover, heartsease, No. 1 white comb, $6 per case; fancy, $6.50; extra fancy, $7; 24 Danz. sections to case; extracted, 120-lb. cases, 25c per pound.
W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.
A. G. Woodman, Grand Rapids, Mich.

**WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.**
**E. B. Rosa, Monroe, Wis.**

**WANTED—Comb, extracted honey, and beeswax R. A. Burnett & Co.,**
**6A12t 173 S. Water St., Chicago, Ill**

FOR SALE—Fifty 60-lb. cans or extracted honey (clover and heartsease blend). Price on application. A. L. Kildow, Putnam, Ill.

FOR SALE—Choice buckwheat honey, in cans or pails.
W. H. Hyde, New Canton, Ill.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

## WANTED

WANTED—200 colonies of bees to run on shares; good location and reference if required. A. A. Spears, Neiber, Wyo.

WANTED—A lady partner that knows how to handle bees. She must have some means. I have a 5-acre grove, a house and everything a woman would wish. Marriage in view.
Fred Van Hagen, Anaheim, Calif.

WANTED To buy, 300 or more colonies of bees, preferably in northern Michigan.
Closson Scott, 408 Selmont St.,
Warren, Ohio.

WANTED—A No 15 Cowan extractor which has been slightly used or shopworn, but in good shape; also steam uncapping knife. Give description and price in first letter
Otto Diestel, Elza, Ga.

WANTED A number of colonies of bees in standard hives, either black or Italian.
F. M. Bowman, Arcadia, Nebr.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—25 to 300 colonies of bees or bees to work on shares.
E. A. Harris, Albany, Ala.

CABBAGE CUTTER, SIX KNIVES, slices all vegetables rapidly. Prepaid, $1; three for $2. Lusher Brothers, Elkhart, Ind.

WANTED—December, 1917, and January, 1918 numbers of the American Bee Journal. Will pay 10 cents per copy.
American Bee Journal, Hamilton, Ill.

WANTED—Foundation Machines. State size, kind, condition, when bought new, and price asked. Grand Haven Pattern Works,
Grand Haven, Mich.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—To work bees on shares, or buy; Wisconsin preferred. Answer, Wisconsin, care of American Bee Journal.

## SUPPLIES

FOR SALE—200 4¼x4¼x1⅞ beeway supers for ten-frame hives; nailed, not painted; brand new; complete with sections, separators, etc., a a very low price. Write
L. W. Mundhenke, E. Dubuque, Ill.

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

FOR SALE— Cheap, a new electric motor, just right for honey house or work shop; 60 cycles, 1-phase, 110 volts, 12 amp.; 1 horse-power constant duty. Inquire of H. M. Leach & Sons, Hiram, Ohio.

FOR SALE—At a bargain: 200 8-frame hive-bodies; 150 bottoms, 150 covers, 110 queen excluders and 25 lbs. Dadant's extra thin foundation. Write for prices.
F. E. Matzke, Juda, Wis.

FOR SALE—1000 Standard bee hives in flat 8 and 10-frame sizes; supers with sections; full depth and shallow extracting frames. Entire lot new and strictly first-class. I will sell in large or small quantities at low prices.
J. O. Hallman, Helena, Ga.

## FOR SALE

FOR SALE—Barnes No. 4 saw.
R. E Hammond, Bethune, S. C.

FOR SALE—40,000 pounds of No. 1 extracted clover honey and 35,000 pounds of aster honey; both of extra light color, heavy body and fine flavor, in 60-lb. cans.
W. B. Wallin, Brooksville, Ky.

GIANT SPIDER PLANT—Great honey plant, seed 10c pkt. S. W. Terhune,
Wortendyke, N. J.

OUR PRINTING SERVICE is unexcelled. If you want labels, stationery or circulars, write for samples and prices.
American Bee Journal, Hamilton, Ill.

**FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.**
**A. E. Burdick, Sunnyside, Wash.**

FOR SALE—A nice little cotton farm, 60 acres; a good location for a beeman. Price, $1,200; $650 cash, balance on 5 years' time, 8 per cent interest. Joe. J. Widmer,
R. 5, Box 107-a, Franklin, Texas.

SONG—"The Plea of the Bee," or "The Honeybee Doing Its Bit." A song for the children as well as for the grown-ups. Sent to any address on receipt of 15 cents.
The Cutting Publishing Co.,
910 Merchants Bank Bldg., Indianapolis, Ind.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—1 to 1,000 combs in Hoffman frames. Honey Bee Farm, Olathe, Kans.

FOR SALE—At a bargain, Oliver typewriter, No. 5, in perfect condition; used very little. Machine is as goo as new; cost, new, $57. For quick sale, $38.
Alfred Bentz, Granton, Wis.

FOR SALE—Finest quality clover and buckwheat extracted honey, in 60-pound cans.
O. W. Bedell, Earlville, N. Y.

FOR SALE—Two extractors, uncapping can, honey tanks, extracting outfit, hives in flat; all new. Would take small job press, bees, queens or honey, new crop. Liberty Press,
Box 224, Shenandoah, Iowa.

FOR SALE—1 book Practical Queen Rearing, 15 back numbers of Domestic Beekeeper; all are in No. 1 shape and will send C. O. D. Write Wm. Feier, Jr., Mason, Mich., R. 2.

## SITUATIONS

WANTED—A position as apiarist by a beekeeper who is planning to emigrate to the United States. He understands the Dadant method of large honey production, speaks a little English and has a small family, which he would bring with him. Address
Valot-Barrey, Rue de Chevignerot, Beaune,
Cote D'Or, France

WANTED—Experienced man to work 82 colonies on shares; want an industrious man. This is a fine locality for bees, 1½ miles back of Columbia river. Address,
Mrs. L. Schmitt, Oak Point, Wash.

WANTED—All-round, practical beeman, one who understands queen-rearing and increase. Can begin in February. Salary and percentage. Virgil Sires' Bee Farms,
Congdon Orchards, Yakima, Wash.

WANTED—Will give experience and fair wage to active young man not afraid of work, for help in large, well-equipped set of apiaries for season starting in April. State present occupation, weight, height, age and beekeeping experience, if any.
Morley Pettit, The Pettit Apiaries,
Georgetown, Ont.

WANTED—Men of energy and character, clean habits, as helpers in our ten apiaries; over 1,000 colonies; 1918 crop over 100,000 pounds; best chance to learn; need one experienced man and students. Write immediately, giving age, height, weight, experience references and wages, *all in first letter.*
E. F. Atwater, Meridian, Idaho.

WANTED—Two brothers, both single, well experienced in apiary work, orchard and poultry raising, desire to purchase apiary, part cash to be paid down, or are willing to run apiary on shares or for wages. Both elderly men and trustworthy
H. R., care American Bee Journal,
Hamilton, Ill.

WANTED—A housekeeper from 30 to 45 years of age; also interest in bees.
Box 91, Charlotte, Iowa.

WANTED—By an experienced beeman, a steady position in an apiary.
C. B. Saunders, Merom, Ind.

## MISCELLANEOUS

FOR EXCHANGE—A Ford car, late model, for bees or good bee supplies.
H. E. Graham, Gause, Texas.

PERFORATED Wooden Well Casing, made of redwood. The best and cheapest well screen made. Send for descriptive circular.
G. M. Hawley, La Mesa, Calif.

WANTED—To trade a $35 protectograph for a honey extractor and bee supplies, or bees. Same is new. Address A. Ebi, San Antonio, Fla.

FOR SALE—Lantern slides relating especially to beekeeping. We are preparing an extended series of slides relating to beekeeping subjcts for those engaged in public work. If you need slides to illustrate your lecture, tell us what you want and we will be glad to quote you prices. Slides can be furnished from nearly all pictures which have appeared in the American Bee Journal, as well as of numerous other subjects. We will also be able to furnish advertising slides showing apiaries, etc., with the name of beekeeper, for use in moving picture theatres Advertise your honey to your local people Everybody goes to the movies If you have a good picture we can prepare a slide showing your own apiary
American Bee Journal Hamilton, Ill

## FOR SALE

FOR SALE—Six copies of "Beekeeping" by E. F. Phillips, damaged in shipment. New copies, all reading matter present, but cannot be sold as perfect copies. Regular price, $2 each. These six copies go at $1 each, postpaid.
American Bee Journal, Hamilton, Ill.

FOR SALE—92 acres of good tillable land, all fenced, 1½ miles from Columbia river, near fireweed belt; 60 miles west of Portland, Ore. Will include apiary of 86 colonies and supplies for between 200 and 300 for comb and extracted honey. Large workshop; fine location; 20 acres clear bottom land, creek for fishing on the place; 25 acres of young fir timber. Large, modern new house; room for two families; good orchard; school house on place. Spring water piped everywhere. Cement walks and foundation. Lawn, two barns 100 feet long; outbuildings, etc. Lots of farm implements, including some furniture. 3 cows and 1 horse. Mild climate, short winters, no wind or storms. A fine location, as there is a big out ranch of 1,000 acres of logged-off land. Logging company under obligation to carry freight. A bargain at price, $8,000; $3,000 down, balance time at 6 per cent.
Mrs. L. Schmitt, Oak Point, Wash.

FOR SALE—We offer the following odd stock and slightly shopworn supplies, which are good as new for all practical purposes, at reduced rates as listed.

105 1-story 8-frame dovetailed hives, with reversible bottoms and excelsior covers, in crates of 5, at $10 per crate.

50 8-frame dovetailed bodies, with frames, in crates of 5, at $4.50 per crate.

80 8-frame excelsior covers, in crates of 5, at $2.50 per crate.

20 8-frame dovetailed supers for 5⅜ extracting frames without frames, in crates of 5, at $2 per crate.

75 8-frame dovetailed supers, with 5⅜ extracting frames in crates of 5, at $3.50 per crate.

75 10-frame dovetailed supers, with 5⅜ extracting frames in crates of 5, at $4 per crate.

100 10-frame dovetailed supers, style N, for 4¼x4¾x1½ plain sections, in crates of 5, at $3 per crate.

100 10-frame dovetailed supers for 5⅜ extracting frames (no frames), in crates of 5, at $2.25 per crate.

2,000 4¼x4¼x1⅞ sections, open one side, at $6.50 per thousand.

5,000 4¼x1¾ 2 side sections, at $6.50 per thousand.

2,000 4¼x2 2 side sections at $6.50 per thousand.

3,000 4¼x1 15-16 2 side at $6.50 per thousand.

4.500 4¼x1½ plain sections at $6 per thousand.

6,000 4x5x1⅜ plain sections at $6 per thousand.

8,000 3⅝x5x1½ plain sections at $6 per thousand.

5,000 4¼x4¾x1⅜ plain sections at $6 per thousand.

10,000 4¼x4¾x1½ plain sections at $6 per thousand.

5,000 4¼x4¾x1½ plain grooved sections at $6 per thousand.

150 shipping cases for 24 3⅝x5x1½ plain sections with 2-inch glass, in crates of 50, $10 per crate.

40 shipping cases for 24 3⅝x5x1½ plain sections in crates of 10, $2 per crate.

50 8-frame tri-state bodies and frames in crates of 5, $4 per crate.

50 8-frame tri-state bodies, empty, in crates of 5, $2.65 per crate.
Dadant & Sons, Hamilton, Ill.

PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

**Manufactured by C. O. BRUNO**
**1413 South West Street, Rockford, Illinois**

**CYPRESS CATALOG**

***Durability Problem Solved***

Buy hives only once in a life time and get satisfactory service. Prices are much less, which economy solves the problem of keeping more bees with me and many other beekeepers. My Cypress catalogs, which are now ready to mail out, will tell you all about it.

**J. J. WILDER**
**WAYCROSS, GEORGIA**

**Binding for Beekeepers**

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading. Send us your order for blank books and let us bind your magazines.

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**

Read ***"THE BEEKEEPER"***

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**
**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

**FOR THE MAN WHO CARES**

Honey Labels, Stationery, Cards, Tags, Circulars—Everything for the Beekeeper—in the Superb Style and Quality of . .

Printing that's Different

**AMERICAN BEE JOURNAL, HAMILTON, ILL.**

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

---

**"GRIGGS SAVES YOU FREIGHT"**

**TOLEDO**

## BEE SUPPLIES

**FOR NEXT SEASON'S USE**

Place your order now and get the large early order discount, besides avoiding the spring congestion and delays which always come.

1919 Season will be the largest in history, owing to high prices received for honey, and all factories will be taxed to limit. Already our December orders are as heavy as last June. Can we count on your order? A list of goods wanted will bring back prices at once.

Better send your name for our new catalogue when it is out.

**Honey and Beeswax** always wanted. Cash or in trade.

## S. J. GRIGGS & COMPANY

**TOLEDO, OHIO**

**Dept. 24**

**"GRIGGS SAVES YOU FREIGHT"**

---

## GIANT TOMATO-CUCUMBER-PEANUT-10c

**Here Are Seeds of Three Valuable and Interesting Varieties You Should Grow In Your Garden This Year.**

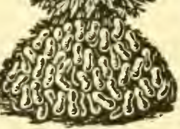
Giant Climbing Tomato

**Giant Climbing Tomato**—Is one of the largest grown. Vines grow very strong and will carry an enormous weight of fruit, very solid, crimson color; specimens often weighing 2 to 3 lbs. each.

**Japanese Climbing Cucumber**—Is a grand variety from Japan; can be trained to fences, trellises or poles and save space in your garden. Fruits early, growing 10 to 15 inches long, and are good for slicing or pickling.

**Early Spanish Peanuts**—Earliest variety and a great Peanut for the North; easy to grow, enormous yielder, and a few hills in your garden will be very interesting to show your neighbors.

**Special Offer:** I will mail one regular sized **Packet of Tomato, Cucumber and Peanut** for only **10c**, or **3 Packets** of each for **25c.**



Early Spanish Peanuts

My new **Seed Book of Garden Seeds** is included free. Order TODAY.

**F. B. MILLS, Seed Grower, Dept. 11 Rose Hill, N.Y.**

Climbing Cucumber

---

## PAINT WITHOUT OIL

**Remarkable Discovery That Cuts Down the Cost of Painting Seventy-Five Per Cent**

**A Free Trial Package is Mailed to Everyone Who Writes**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

---

Write for Price List and Boooklet descriptive of

**HIGH-GRADE**

**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

---

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

---

## Golden Queens

After April 1, untested $1.25 each, 6 for $7, or $13 per doz. or 50 for $48. Also untested 3-band at same price; tested, $3 each, and my very best $5 each. Satisfaction.

**R. O. COX**
**Route 4, Greenville, Alabama**

---

**Don't stop advertising.** because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.

**American Bee Journal Hamilton, Illinois**

---

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

# Overstocked Big Discount

## 25% Off Some Items

**WILL SELL AT FOLLOWING PRICES WHILE STOCK LASTS**

| | | |
|---|---|---|
| Massey Hives, one story | 5 | $14.25 |
| Scalloped Separators | 100 | 1.52 |
| Hive Hooks | 100 | 1.50 |
| Super Springs | 100 | .85 |
| Ventilated Bottoms, eight-frame | 5 | 2.70 |
| " " ten-frame | 5 | 2.80 |
| Division Board, standard | 10 | .75 |
| Aluminum Wiring Tool | Each | .30 |
| Rubber-Coated Gloves | Pair | 1.20 |

**THE KRETCHMER MFG. COMPANY**

*DEPARTMENT A*

301 Eleventh Avenue Council Bluffs, Iowa

# Queens That Will Please

Queens that are bred for business; hardy, long-lived, gentle and disease-resisting. They are as good as any and far superior to most.

They are bred from IMPORTED STOCK which produces a bee that is the best in the world for honey-gathering and non-swarming. They are now giving service in nearly every country in the world.

Have your orders booked now for early delivery. All that we require is one-fourth cash and balance when you are ready for the queens to be shipped.

WE GUARANTEE every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction in the United States and Canada.

**Prices—April 15 to July 1**

| | One | Six | Twelve |
|---|---|---|---|
| Untested | $1.25 | $ 6.50 | $11.50 |
| Selected Untested | 1.50 | 7.50 | 13.25 |
| Tested | 2.50 | 13.00 | 24.50 |
| Selected Tested | 4.00 | 22.00 | 41.00 |

**L. L. FOREHAND : : Fort Deposit, Ala.**

# TYPEWRITER SENSATION

**$3 or $4** monthly **buys** a Beautifully Reconstructed Latest Model Visible Typewriter with back-spacer, decimal tabulator, two-color ribbon, etc. Every late style feature and modern operating convenience. Perfect appearance, perfect action and absolute dependability. Sent anywhere on approval. Catalog and special price **FREE. HARRY A. SMITH (314), 218 North Wells Street, Chicago, Ill.**

OLDS' White Beauty
New For 1919

**OLDS' Catalog**

**TELLS THE TRUTH**

**Olds' White Beauty** is a new potato, now offered for the first time. It is very productive, outyielding well-known standard sorts, smooth and handsome and of very superior quality.

## Write for Catalog

describing and illustrating this and other varieties **Potatoes, Corn, Oats, Wheat, Barley, Speltz, Soy Beans, Millet, Clover, Alfalfa, Timothy, Garden Seeds, Flower Seeds, Bulbs, Plants, Tools, Etc.**

***ASK FOR FREE SAMPLES***

**High-Grade Field Seeds,** showing purity and germination tests. Mention those interested in.

**L. L. OLDS SEED CO.** Drawer P 1 MADISON, WIS.

# BEES

We furnish full colonies of bees in chaff or single-walled hives, nucleus colonies or bees by the pound in season. Prices on application.

Ten-ounce screw-capped jars, two-gross crates, at $7.50 a gross.

**I. J. STRINGHAM**
**Glen Cove .. New York**

# Crop Report and Market Condition

Compiled by M. G. Dadant

There is very little new to report. Honey appears to be in much lighter demand, with a consequent easing up in prices offered. There seems to be little desire, however, to sell below a price of 25 cents for best white extracted, with 2 to 5 cents less for amber. One California brokerage firm offers California amber at 23 cents and Hawaii amber at 19 cents.

Inbound shipments at New York are fairly plentiful, prices ranging at a little less than 20 cents for Cuban and Porto Rican honey.

We give below market report of the United States Department of Agriculture for December 30, 1918:

### Honey Arrivals Since Last Report

**Medina, Ohio**—3,632 lbs. Florida, 31,900 lbs. Ohio, 42,000 lbs. Pennsylvania, 5,617 lbs. New York, 69,600 lbs. Idaho, 65,500 lbs. New Mexico, 800 lbs. Kentucky.

### Shipping Point Information

San Francisco, Calif.,—Supplies light. Demand and movement slow; no change in prices. Cash to producer at country loading points, extracted, per lb., water white, 22-23c; sage white, 20-22c; white alfalfa, 20-20½c; light amber alfalfa, 19-20c; dark amber, 16-17c. Comb: Nevada 24-section cases, white, $6.50; light amber, $5.50; dark amber, $4-4.25. Beeswax, 36-37c per pound.

**Los Angeles, Calif.**—Supplies very light. Exchange now controls large share of honey remaining in producers' hands. Demand slow, little change in prices. Cash to producer on farm, extracted, light amber alfalfa, 19-20c per pound; light amber sage, 20½-21½c per pound. Comb: 24-section cases, No. 1 light, $5-6 per case. Beeswax, 36-38c per pound.

### Telegraphic Reports from Important Markets

**Note:** Arrivals include receipts during preceding two weeks. Prices represent current quotations.

**Kansas City**—No arrivals. Supplies very light. Demand and movement slow, few sales. Sales to jobbers, extracted: 60-lb. cans southern amber, 25-26c per pound. Comb: No supplies on margket.

**St. Paul**—Home-grown receipts moderate. Supplies moderate. Demand and movement slow. Sales direct to retailers, comb: No change in prices. Colorados and Minnesotas, 24-section cases fancy, quality and condition good, $7.50-8.00. Extracted: prices lower; Minnesota, 60-lb. cans fancy white, mostly 25c per pound.

**St. Louis**—Supplies light. Demand light; movement slow. Sales to jobbers, extracted, per pound, Southern, barrels, amber, 18120c; cans, 20-21c per pound. Comb: No supplies on market. Beeswax, prime, 40c per pound.

**Chicago**—1 Colorado arrived. Demand and movement slow; little change in prices. Sales to jobbers, extracted: Western white, 25-26c; amber, 22-23c per pound. Comb: No sales reported.

**Spokane**—No arrivals. Supplies light, not cleaning up. Practically no demand or movement reported. Sales direct to retailers, Idaho, extracted: 5 and 10-gallon cans white alfalfa, 20-23c per pound. Comb: White alfaffa, 24-section cases No. 1, $7.25; No. 2, $7.

**New York**—212 barrels Porto Rico arrived. Supplies moderate. Demand and movement slow. Sales to jobbers, extracted: few sales Porto Rico at $2.30-2.60, mostly $2.30-2.40 per gallon. New York buckwheat, 22-23c; clover, 23-25c per pound. Comb: Very little market. California, very few sales. Light amber, 25-26c; white ,25-27c per pound. Beeswax: 18 bales Porto Rico arrived. Supplies light. Demand and movement slow; little change in prices. Per pound, light, 43-44½c; dark, 42-43½c.

**Philadelphia**—Arrivals: Extracted, 102 cases of 10 gallons each and 47 kegs New York, 4 cases and 3 barrels Florida, 13 cases New Jersey; Comb, 162 cases New York, 767 cases Vermont; too few sales to establish market.

**Cincinnati**—1 California arrived. Demand and movement slow. Sales to jobbers, extracted: Few sales, white sage and sweet clover at 27-28c per pound. Comb: 24-section cases, No. 1 white, heavy, $7.00-7.25; fancy white, heavy, $7.25-7.50. Beeswax: Demand and movement moderate, No. 1. white, 40-42c per pound.

**Cleveland**—No arrivals, supplies not cleaning up. Demand slow, practically no movement; prices decreasing; few sales. Sales to confectioners and bakers. Extracted, western, 60-lb. tins light amber, 31c; white clover mostly 25c per pound.

**Denver**—Approximately 1,500 pounds extracted arrived. Supplies moderate. Demand light, movement slow. Sales direct to retailers. Comb: few 24-section cases No. 1 white at $6.30; No. 2, $5.65. Extracted: Light amber, 22-24c per pound. Beeswax: Cash to grower, f. o. b. Denver, 38c per pound.

**Minneapolis**—Home-grown supplies moderate. Demand and movement moderate. Sales direct to retailers. Comb: no change in prices. Minnesotas and Colorados, quality and condition fine, 24-section cases fancy white, $7.50 per case. Extracted: Prices slightly lower. California, quality and condition generally good, 60-lb. cans, 26-28c per pound; Minnesota, quality and condition good, 60-lb. cans fancy, mostly 30c per pound.

**New Honey Label Catalog**

It is a debated question whether honey will remain at its present price level when normal times come once more. The foresighted beekeeper is the one who will prepare for any contingency, by assuring himself of a steady market, regardless of price fluctuations.

This can best be done by developing the home market to its fullest extent and attractive labels on his packages are one of the most important things to consider when working up local demand for honey. They should stand next to superior product, and neat, clean packages.

Our new label catalog lists many distinctive labels which you will like. Write for your copy today. It is free. Beekeepers' Stationery is also offered.

**AMERICAN BEE JOURNAL, Hamilton, Ill.**

**WESTERN BEEKEEPERS!**

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey-Producers' Association
1424 Market Street, Denver, Colo.

BUY
**THE FAMOUS DAVIS GOLDENS**

And get big yields from gentle bees. Write for Circular and Price List.

BEN G. DAVIS,
Spring Hill, Tennessee.

# EASTERN BEEKEEPERS

We are having mild weather and bees are wintering perfectly, which means early swarms and big increase in bees. Are you among those that are prepared for this increase? Remember, Bees are valuable and **you** cannot afford to let them fly away for **lack of hives and other supplies.** Also **Comb** honey is all cleaned up, and a good crop of comb honey will have a **ready** market **next summer. Lewis** Sections are guaranteed to fold **perfectly square without wetting** the joints. Have you ever tried them? A trial will **convince** you; and they should be **filled** with **Dadant's Foundation for best results.** Catalogue, also Beginners' Book, free. Address,

## THE DEROY TAYLOR COMPANY

**NEWARK, WAYNE COUNTY, NEW YORK**

# MARSHFIELD GOODS

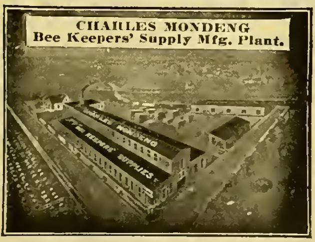
## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**



## A BIG STOCK OF
# BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

## CHAS. MONDENG

**159 Cedar Lake Road** **MINNEAPOLIS, MINN.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

# ORDER BEE SUPPLIES EARLY

We can supply you with the best of everything — Dovetailed Hives, Supers, Frames, Honey Sections and Comb Foundation.

Be prepared for the coming season. Our catalogue ready January 10. Send for it.

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

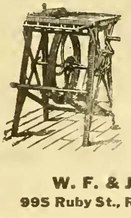
# BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and $8.00; select tested, $1.25.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

# BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# BARGAIN PRICES on BEE SUPPLIES

**We have just bought the stock of the Root Company's Des Moines branch, which was moved to Council Bluffs several months ago.**

The stock consists of goods made before manufacturing costs were so high. We bought at remarkably low figures and will give you the benefit to close the lot out quickly.

Don't waste time---write us immediately for prices on the supplies you want. Mention the Root Des Moines Stock, so you'll be sure to get the lowest prices.

MADE RIGHT
BEE SUPPLIES
*Quality ... Service*

**THE KRETCHMER MFG. CO.**

**Dept. A** **COUNCIL BLUFFS, IOWA**

## FOREHAND'S THREE-BANDS

(THE THRIFTY KIND)

are unsurpassed by none, but superior to many. For twenty-seven years they have pleased thousands of beekeepers and we guarantee that they will please you.

Our queens are the imported queens, Americanized. This makes them light in color, but they still retain the fine qualities of their imported mothers. They are thrifty, hardy, gentle and beautiful.

Deposit your order now, so that you can get your queens when you want them. Only one-fourth cash down. We guarantee pure mating, safe arrival, and perfect satisfaction.

PRICES AFTER APRIL 1

| | One | Six | Twelve | | One | Six | Twelve |
|---|---|---|---|---|---|---|---|
| Untested | $1.25 | $ 6.50 | $11.50 | Tested | 2.50 | 13.00 | 24.50 |
| Select Untested | 1.50 | 7.50 | 13.25 | Select Tested | 4.00 | 22.00 | 41.00 |

W. J. FOREHAND & SONS, Fort Deposit, Alabama
Are "Breeders of the Best Bees"

CYPRESS LASTS PRACTICALLY FOREVER

## CYPRESS by TEST
## Substitutes by TALK

CYPRESS "THE WOOD ETERNAL"

### The PROOF? — Two Letters FROM BEEMEN:

"Our correspondent makes serious complaints against———and Makes a Plea for Cypress as a Beehive Material. We hope you will look into this matter," (Etc.)—and here's another:

"Mr. ———, of ———, just came into the office. He informs us that they tried a car of Cypress Lumber last year for the first time, and are so well pleased with it that they are Ordering Another Car for use in making Hive Bottoms."

Is there value to you in an endurance test of 51 years in greenhouse sash? It is reported to us that sash made of heart Cypress by a prominent greenhouse contractor in Chicago, and placed in position in a greenhouse at Des Plaines, Ill., in 1868, are **Still Doing Service.**

**It Will Serve You as Well** and save you the nuisance and expense of repairs and replacements.

The argument backed by such facts cannot be answered by mere talk. Ask the manufacturer or contractor who wants to give you a "substitute" for Cypress to cite to you an endurance test of 30 or 45 years to the credit of the so-called "substitute."

That is no more than a fair precaution on your part—good, ordinary business sense.

**Write us for Vol. 1 of the Famous Cypress Pocket Library with Full U. S. Government Report on "The Wood Eternal"**

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA. — 1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

## Service and Quality

**Bee Supplies** **Bee Supplies**

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

**C. H. W. Weber & Company**

**2146 Central Avenue** **CINCINNATI, OHIO**

## Are Now Booking Orders for 1919 Spring Delivery

Twenty-three years of Select Breeding gives us Bees of Highest Quality and Vitality.
Largest Package Shippers and Queen Breeders in the South.

**1500 Colonies of Bees and 1500 Nuclei**

10,000 Pounds of Bees — Annual Capacity — Italian Queens, 15,000

SAFE ARRIVAL AND SATISFACTION WE GUARANTEE

Our Circular and Price List for 1919 is Now Ready to Mail

**M. C. BERRY & CO., Hayneville, Alabama, U. S. A.**

# WHAT YOU GET

## When You Buy Root Quality Bee Supplies

You send in your order for Bee Supplies—hives, supers, foundation, containers, or appliances. Your order is filled promptly from Root's nearest dealer or service branch. Then, you are troubled by some beekeeping question which may come up—swarming, disease, robbing, or any one of many other problems which so often puzzle the veteran as well as the beginner. You look in all your books, but you can't get just the information you desire. Then you are "up the stump!"

## You Don't Need to be Up a Stump

Write to us and we will gladly answer all the questions that are bothering you. We give all our customers the full benefit of our wide beekeeping experience. **We are the only Bee Supply Manufacturers having this practical knowledge on a large scale,** and we give all our customers the benefit of this vast store of information FREE. This is ROOT SERVICE.

One of Many Satisfied Customers writes

> *The A. I. Root Co., Medina, Ohio:*
>
> *Your supplies are the best we have ever used. We were thinking of asking for prices two years ago, but were afraid of the freight charges. But we are satisfied now we can buy as cheaply of you, and get a better grade of supplies, than of any other place we ever bought.*
>
> *M. L. & E. F. SKOUGARD, Parowan, Utah.*

## *The* A. I. ROOT CO., Medina, O.

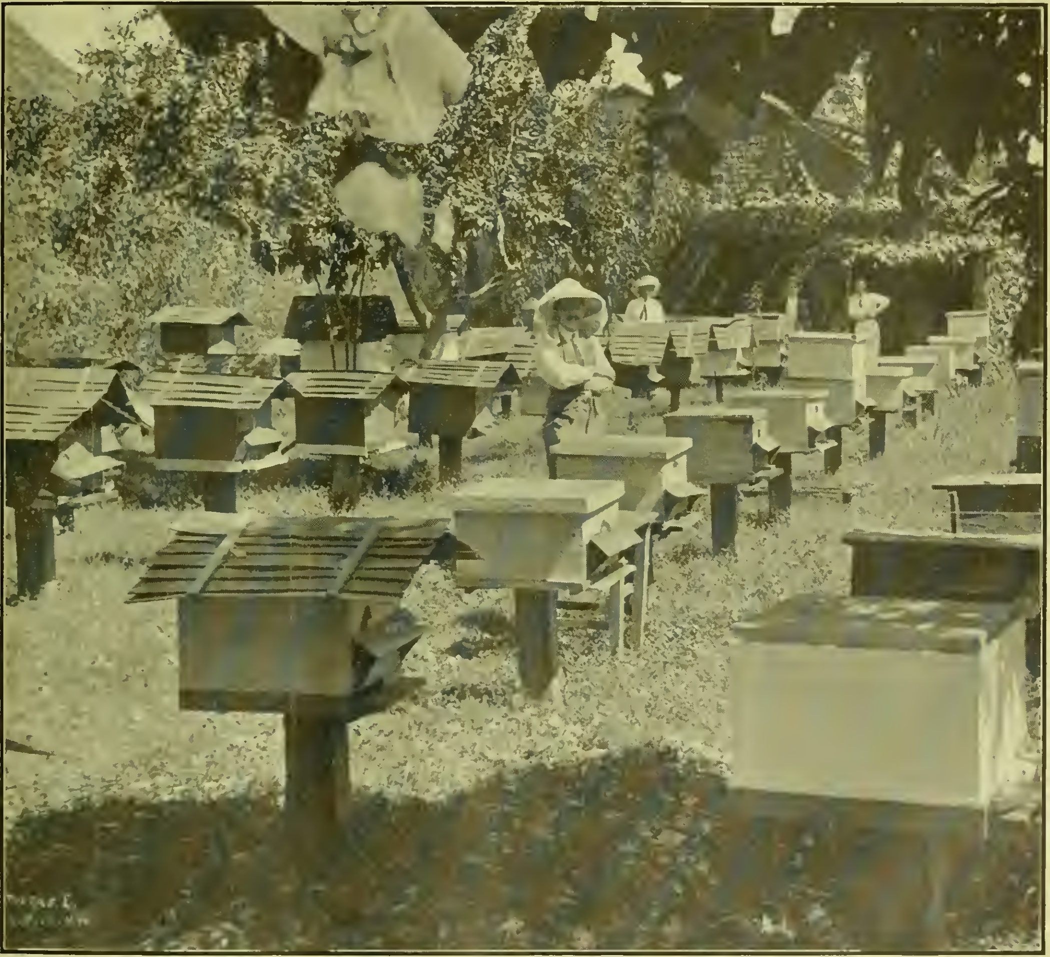
New York
Chicago
Philadelphia

Indianapolis
St. Paul
Syracuse

Los Angeles
Norfolk
San Francisco

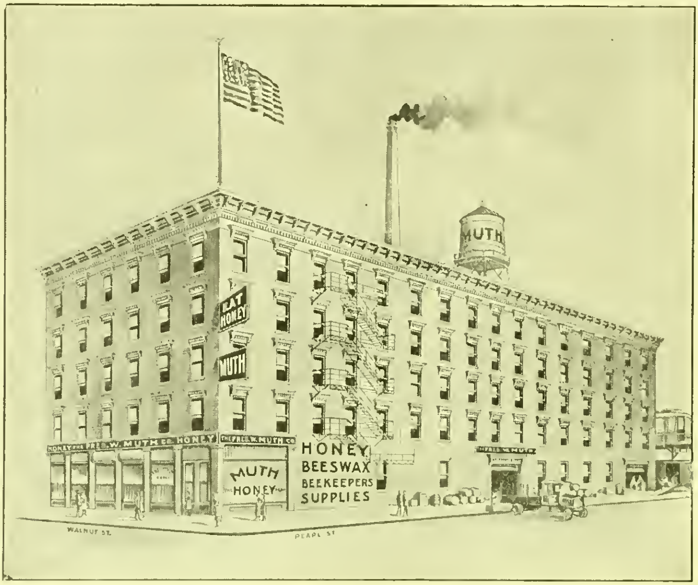
# AMERICAN BEE JOURNAL

MARCH, 1919



A MODERN APIARY IN MEXICO.
CONTRAST WITH THE ONE SHOWN ON OUR JULY, 1918, COVER.

Here's a Reproduction of
Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

LEWIS' BEEWARE

DADANT'S FOUNDATION

ROOT'S SMOKERS, EXTRACTORS, ETC.

**OLD COMBS AND CAPPINGS**
Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**
Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

**THE FRED W. MUTH CO.** Pearl and Walnut Streets
CINCINNATI, OHIO

"THE BUSY BEEMEN"

# Four Bee Books

YOU SHOULD HAVE

## IN YOUR LIBRARY

### First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

### A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

### Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

### Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price $1.50**
Mailing weight, three pounds

ALL FOR SALE BY

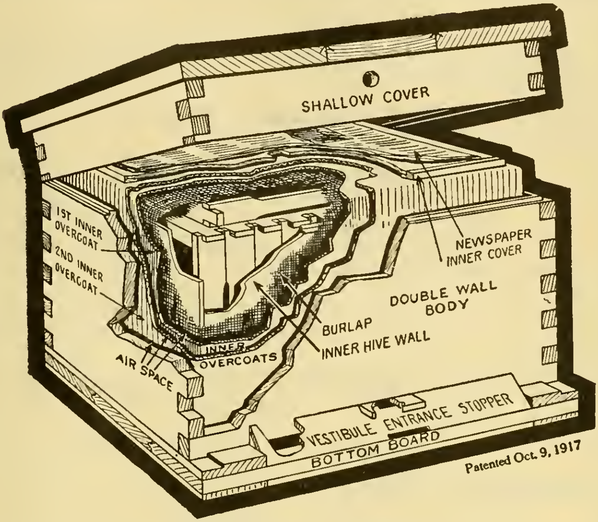
**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

---

# WINTER PROBLEM SOLVED

BY

## THE HIVE WITH AN INNER OVERCOAT



### PROTECTION HIVE

Simplify your Wintering Problems. How would you like to enliminate the expense, extra labor and inconvenience of that back yard full of contrivances, in Winter Cases and other forms of packing insulation? Wouldn't it be worth quite a lot to you to avoid such congestion? It will be to your advantage to avoid excess equipment. The Protection Hive will give you a neat, compact, substantial and efficient outfit.

For your information and to be convinced of the efficiency of this hive, send for a sample. For a limited time one sample hive will be sent set up and equipped as per this illustration, at the

**Special Price of $5.00**

Our new illustrated catalog for the season of 1919 and a special circular of the Woodman Protection Hive, showing 10 large illustrations will be sent upon request. Send us a list of your requirements and let us figure with you on your wants for the coming season.

**A. G. WOODMAN CO., Grand Rapids, Mich., U. S. A.**

---

## BEFORE YOU BUY BEE SUPPLIES

Get details about **Lewis** Beeware. The inquiry will cost you nothing. The information you get will save money for you and give you better satisfaction.

Know **Lewis Beeware** before you buy elswhere.

**Write Today. Dept. B**

**WESTERN HONEY PRODUCERS**
1929-1931 FOURTH STREET
SIOUX CITY, IOWA

"falcon" **IT MEANS** "falcon"

**Simply This:** We have got to "carry on" with all our might and with more "pep" than ever before. You are urgently requested to prepare to do your part when the time comes to "carry in" the enormous honey crop for which we must prepare.

PREPARE IN THE RIGHT WAY BY ORDERING EARLY

This will save time, money and honey, and will be gratifying to your ambition to help your country and fellow citizens. Let them have a good quality of honey and lots of it. **You Can Do It.** Get the goods that you are going to need and have them ready for the beginning of the season. To make this more of a saving to you, we are giving an **early order cash discount of 10% for shipment prior to December 1, 1918.**

**Use only the goods that are tested and known to be the best and most reliable; therefore, "falcon" goods will give the best results. Our goods are made by experienced and interested workers. This is the reason we are known in every land.**

SEND THAT LIST OF REQUIREMENTS TO US AT ONCE FOR PRICES

Catalog and "Simplified Beekeeping" on request

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Best Beehives Come From**

**The Diamond Match Co.**

(APIARY DEPT.)

MANUFACTURERS OF

**Beekeepers' Supplies**

CHICO, CAL., U. S. A.

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**

**Apiary Department** **CHICO, CAL., U. S. A.**

"SUPERIOR" FOUNDATION FREE

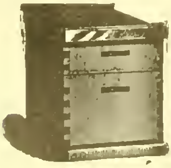
EXHAUSTIVE TESTS among our 3,000 colonies of bees in Utah and Idaho utterly disprove the claim of a certain manufacturer of Weed Process Foundation that the "bees take to theirs first." Any such faculty among the bees is determined by the freshness of the foundation used, the weight of the sheets, the nature of the honey flow, etc. Exactly the same machinery, the same process and the same materials are used by all manufacturers of Weed Process Foundation. Other conditions being equal, the bees will not draw out one brand of Weed Process Foundation any quicker than they will another brand of the same process.

Let your own bees prove this to your entire satisfaction. After May 1 we will furnish free foundation to all beekeepers applying for same for experimental purposes; they in turn to advise us the results of their tests.

SUPERIOR HONEY CO., OGDEN, UTAH

(Manufacturers of Weed Process Foundation)

"Best by Test"



EARLY ORDER DISCOUNTS WILL

**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

or J. W. ROUSE, Mexico, Mo.

**FRENCH**

**ASPARAGUS BEANS** bear GIGANTIC pods **30** inches long. Produce abundantly anywhere. Wonderfully delicious—rare flavor entirely stringless. Bring big market prices. A century old Oriental delicacy that has been long grown and prized in the best American and French gardens. A valuable companion crop for beekeepers. Free Bulletin if Bee Journal is mentioned. Pkt. (about 300 seeds), $1, postpaid. **J. A. & B. LINCOLN**, Growers and Importers, 39 South La Salle Street, Chicago, Ill.

# Don't Take Our Word

For the claims we make in regard to DADANT'S FOUNDATION. Ask the beekeepers who have tried it side by side with other makes and who KNOW its value by the *results.*

**READ THIS**

> *Dadant & Sons, Hamilton, Ill.*
>
> *Gentlemen: Yours is certainly the best foundation by far, and if there is an honest advertisement in the American Bee Journal, it is yours on the 401st page of the December issue, as I found my bees to be the same as A. N. Norton's, of New Mexico. I used foundation from ————, and from ————, and yours all last summer, and the bees drew out yours and worked more quickly on it than on either of the other two brands. The only difference that I could see was that there was a little difference in color. There must be something in it that the bees can tell better than we can.*
>
> *Yours truly,*
>
> *ELMER KOMMER.*
>
> *Woodhull, Ill., Dec. 23, 1918.*

**ALSO THIS ONE**

> *Dadant & Sons, Hamilton, Ill.*
>
> *Gentlemen: At what price will you furnish me 1,000 pounds of Medium Brood Foundation, in sheets to fit the Hoffman frames, packed in cartons and also packed 25 pounds in a box?*
>
> *One of the reasons I have for asking the price in the above paragraph is that I have used a great deal of your foundation, as well as that of other manufacturers, and the bees certainly work on yours quicker than on others, and possibly I might prefer to sell my beeswax to you, or to others and buy your product, even if at some extra expense. I have about 40,000 drawn-out combs from foundation sheets and have accumulated quite a bit of information regarding the drawing out of full sheets of Comb Foundation, etc. An early reply is requested.*
>
> *Yours very truly,*
>
> *ELTON WARNER.*
>
> *Asheville, N. C., Dec. 27, 1918.*

Mr. Warner is a very extensive beekeeper, having large apiaries on the island of Porto Rico. Certainly in drawing out 40,000 combs one would have a fine opportunity to note any preference of the bees for a certain brand of foundation.

These testimonials and many others come to us *unsolicited.* They prove to us that DADANT'S FOUNDATION deserves the prestige that it enjoys. Insist on DADANT'S FOUNDATION. If you cannot get it of your dealer, then order of us.

**DADANT & SONS** HAMILTON ILLINOIS

*ANTICIPATE*
*Your 1919 Bee Requirements*
*NOW!*

HELP US CO-OPERATE WITH THE GOVERNMENT BY ORDERING YOUR BEE SUPPLIES FOR NEXT SEASON NOW!

Transportation conditions may not permit of prompt shipments later on. Now, of all times, the Beekeeper **should not put off until tomorrow what he can do today.** You owe it to your country and to yourself to prepare at once for the gathering of the nineteen nineteen crop.

**Have You Enough Hives?**
**Have You Enough Supers?**
**Have You Enough Frames?**
**Have You Enough Sections?**

And have you enough of the rest of the things you will need?

THE LEWIS FACTORY IS NOW OPERATING NIGHT AND DAY TO TAKE CARE OF THE SEASON'S DEMANDS

Help us while we are helping you. Place your orders now, so manufacturers and dealers can help their country---your country, you and themselves, by preparing now for your needs.

THE NEW LEWIS CATALOG
will be out this month

*G. B. LEWIS COMPANY*
*Manufacturers of Beesware*
*WATERTON, WISCONSIN*

AMERICAN
BEE JOURNAL

VOL. LIX—NO. 3 HAMILTON, ILL., MARCH, 1919 MONTHLY, $1.00 A YEAR

# BUILDING UP COLONIES IN SPRING

## A Discussion of a Most Important Factor in Securing the Maximum per Colony of Production, by C. P. Dadant.

I DO not now recall which one of our educators in beekeeping made the wise remark that colonies of bees should be prepared for winter as early as August and September, by seeing that each hive had a good, prolific queen, and a sufficient amount of good honey.

If those two requisites are important to winter the bees, it follows that they are also important in building up the colonies in spring in time for the honey crop. A good prolific queen, in the early fall, will supply her hive with a plentiful stock of young bees before the inactive season comes. A strong colony will secure plentiful stores. So the requisites which make for good wintering provide favorable conditions in early spring.

Since the American Bee Journal has, among its readers, active beekeepers located anywhere from Quebec to Florida and from the State of Washington to Washington, D. C., advice upon building up colonies for the crop cannot be based upon any exact dates. The beekeeper must be acquainted with the flora of his district and plan his building up of colonies accordingly. In some localities the preparations will be made in January. In other localities the bees will be coming out of the cellar while the former are through their first harvest. But, barring the dates of the required preparations, the necessity of bringing colonies to the strongest possible condition for the crop is the same.

Many beekeepers of the old days believed that the worker-bees lived a year or more. The introduction of the Italian bees in hives of black bees made it plain to the masters that bees, in the busy season, do not average more than 40 days of actual life, and that about two weeks of that short space are spent in the hive, previous to active work.

The eggs laid at a given date by the queen require 21 days to hatch. The worker remains a week in the hive, growing stronger daily, then takes a first flight. Then she remains another week in the hive before becoming an active field worker. These dates may be a little lengthened by unpleasant weather. They may also be a little shortened by accidental circumstances. For instance, in a hive which has swarmed and lost most of its field bees, the young workers become field laborers earlier. The same thing happens if a division is made which leaves a colony with only young bees. Some people refuse to grant the bees anything but instinct. That instinct, however, seems akin to reason.

Since the average time required for the development of the worker-bee is 35 days, we readily see that the laying of the queens on an extensive scale must be begun more than 35 days before the opening of the crop. In fact, to succeed fully, the period of heavy laying should begin early enough to secure a large field force before the opening of the crop. This means the emerging of thousands of bees for at least a month previous to the honeyflow.

Several requirements must be complied with to secure not only active laying of eggs, but safe hatching of workers. Warmth is necessary. If the colony has a young, prolific queen, we may depend on her to do her duty, if she is fed, as she should be.

The scientific observers have noticed that the bees do not neglect the queen, but feed her as often as she appears to desire it, provided they have the food. The food given her, they say, is mainly royal jelly, which many of the bees prepare for the feeding of the larvæ. Whether the queen is fed on this jelly altogether or on pure honey also matters little. The bees feed her, it is clear, and this constant feeding induces the growth of eggs in her ovaries. In order that she may be fed plentifully, the bees themselves must have food in plenty and easily accessible.

Honey is the first requisite. But it needs to be of a thinner consistency than the honey which has been preserved through the winter. So water is also needed, both for the queen and the brood food. That is why we see so many bees at the watering trough or at the creek, sipping the moisture on every pleasant day. Colonies that go after water freely are sure to have much brood and an active laying queen. Our authorities agree that, at these times, if syrup is supplied in place of honey it must be given thin and warm. But syrup is probably not the best food for either the queen or the larvæ. Sugar syrup makes good winter food because it does not contain any large proportion of tissue-forming material, and therefore does not load the intestines of the bees. But in the spring the bees need more solid food for the tissue-forming of the young bees or for the egg-production of the queen.

Pollen is then indispensable. When no pollen is to be found, which is sometimes the case in early spring and especially in spots remote from woods, we have often replaced it with wheat or rye flour, or fine corn-meal. Some of the later scientists assert that it is not a practical substitute. But we have often supplied hundreds of pounds of flour to apiaries, and it has always been used freely until pollen appeared. The bees actually carry honey with them to dilute the flour thus given in boxes about the apiary.

When all the honey in the hive is sealed and nothing is found by the bees, in the fields, in early spring, we have found it advisable to uncap some of the cells, from time to time, to excite their propensity towards feeding the queen. This is intensive beekeeping and is difficult to follow on a large number of colonies and especially in outapiaries. A light amount of feeding of the colony is also good to induce extra feeding of the queen by the bees. We know that some object to it, and it is perhaps successful only in instances where there is an interval between one early bloom and another. It is very important that the bees should not lessen the breeding previous to the heavy flow, and some means must be found to secure this continuous laying.

The difference in results between two apiaries is often due to the difference in the condition of the hives in the two months that precede the honeycrop. In the one case the bees have a sufficient supply of honey and in addition find, readily, pollen, water, and an occasional light flow of nectar such as dandelion or fruit bloom—not enough to store a surplus, but enough to enhance brood-rearing. The colony grows apace in numbers and when the real crop comes the supers are soon filled.

In the other case, the supply of honey in the hive may be scant, the pollen late, the water out of reach; the flow of occasional nectar is perhaps not to be had. The bees increase in numbers slowly and the heavy breeding begins only at the opening of the heavy honey flow. So the bees use up the honey they gather, in rearing bees that may be altogether too late for the crop and that will help in consuming the supply instead of having helped to gather it.

It may be advisable to insist, especially with the novices, upon the supply of honey needed to carry a colony of bees to the main honey flow. In some localities, when the fruit bloom flow comes, it is followed shortly afterwards by another flow of nectar. But in our locality, quite a space of time elapses, after fruit bloom, when there is nothing in the fields but pollen-producing bloom. Three weeks may elapse between fruit bloom and clover. Then is the important time to make sure of the bees having a sufficiency for breeding.

An inexperienced horticulturist who had studied a few bee books asked me once to sell him a hive of bees. I told him where he could get a colony cheaper than I could sell him one, and offered him, in case he made the purchase, to transport it to his yard and place it there for him. It was shortly after fruit bloom. In transporting the hive I noticed that it was very light, although strong in bees. After releasing the bees in the selected spot, under a fruit tree, I mentioned to him the probable necessity of having to feed them for a few days, till the clover honey flow. He looked at me with amazement. "What? Feed them now? When summer opens? I expected to get honey from them, not to have to feed them!" This was a damper on his bee enthusiasm from which he never recovered. Too many think the bees should make honey, just because summer is opening, and do not feel either willing or able to look after their possible wants at the critical time when a little support may save them and secure a strong force for the crop.

The honey flow is often of short duration. In our own experience, we have seen a honey harvest last under 30 days oftener than over that length of time. The colony that has a full force at the opening of such a flow may fill every available cell, not only in its brood-chamber, but in several supers. The colony which is only beginning its full and active breeding, at that time, will have a field force which may help only in consuming the little which was gathered.

One of the beekeepers of 30 years ago, Heddon, wrote: "The bee business is a business of details." This is true; the little details make or mar the success.

"Large streams from little fountains
flow;
Tall oaks from little acorns grow."

Blossoms of the cotton plant. U. S. Department of Agriculture.

## Honey From Cotton

By Frank C. Pellett

ALTHOUGH the cotton plant is found growing wild in many warm countries, in the United States it is known only as a staple field crop. It was brought to this country as early as 1621, and has been the most important plant grown on southern plantations since the early development of the country.

The plant thrives in a warm and humid climate, and needs five to six months of warm weather. However, it is grown successfully under semi-arid conditions in parts of Texas and other southwestern States. The so-called cotton belt extends from the northwest corner of Texas south to the Rio Grande, and east to the Atlantic seaboard. A limited acreage is grown in California, but, excepting very restricted areas, it is not important outside the territory mentioned. Texas, Mississippi, Alabama and Georgia, are perhaps, the most important of the cotton-growing States. The Carolinas, Louisiana and Oklahoma also grow it in large areas.

Honey production reaches its highest development in localities where good nectar-yielding plants are grown in large acreage. Hence we find beekeeping thriving in dairy communities, where alsike and white clover are grown abundantly. We also find the beekeepers prosperous where alfalfa is an important crop. In the southern states, cotton is the one field crop grown on a sufficient scale to offer ideal conditions for the beekeeper. However, cotton is fickle in its behavior, and cannot always be depended upon to produce nectar, no matter how abundant the crop. In some cotton-growing districts the beekeepers swear by cotton, while in other localities they declare that it is of little value. The character of the soil seems to be a very important factor in the secretion of nectar by this plant. The vigor of the growth and the amount of available plant food in the soil are also important. Reports from different sections indicate that the quality of the honey varies in different sections.

W. D. Null, of Demopolis, Ala., wrote to the author as follows:

> "This, you know, was for sixty years the heaviest cotton-growing section in the nation. Bees will not work cotton if they can work anything else, even bitterweed. It yields honey of very poor quality, and never very much, some years none at all. Weather conditions must be just right, and that don't come often. The honey is the same grade as most honeydews."

In contrast, we find the following report of good honey and abundant yield, in American Bee Journal for 1907, page 267:

> "Cotton blossoms furnish a great deal of excellent honey, and the theory that it explodes or ferments is all bosh. It makes an excellent rich honey, oily, and it is not liked so well by some until they get used to it.—Jules Belknap, M. D., Sulphur Springs, Ark."

Cotton ready to pick. U. S. Department of Agriculture.

When the writer made his first trip through Georgia he was much puzzled by the different reports of apparently good observers in different parts of the State. The matter was finally explained by a beekeeper who had lived in different localities, by the variation in behavior of the plant under different conditions. There is perhaps no important honey plant which varies so much, in the quality of its nectar, as does cotton. The poor quality in some places can doubtless be explained by the fact that the flow is not abundant, and is mixed with other low-grade stores. However, honeydew is also sometimes reported from the plant itself.

> "Sometimes, during a damp spell, the cotton gets covered with vast numbers of aphis, and the upper side of the leaves will first get gummy and then will even drip a kind of dirty-looking sweet fluid. If there is anything else on hand the bees will not touch it."—W. H. Alder, Callallen Co., Tex., page 334, American Bee Journal, 1899.

It is needless to say that this would make a poor product, and it is not improbable that honeydew is sometimes secured from cotton in localities where it seldom yields nectar. The secretion is apparently dependent far more upon soil, than upon any other condition. Upon the black waxy lands of Texas and upon other soils, it reaches its highest development. The boundary of the belt, where cotton yields freely and where it does not, is very marked in Texas. North of the escarpment which runs across Bexar county, Texas, near San Antonio, it is an important source. South of that line few beekeepers report it as dependable. North of this line the soil is black and heavy; south it is sandy. Wherever the writer has found beekeepers on sandy soil, they have reported the yield from cotton as uncertain; while on the heavy soils they report it as fairly constant, with suitable weather conditions. The map shown herewith roughly outlines the heavy section where honey from cotton is important in Texas. Cotton is grown east, south, and, to some extent, west of that line. In east Texas, cotton is reported as yielding well on river bottom lands and but little on the hills. In the southern sections, and also in other States, an occasional crop is reported where it does not yield regularly:

> "We had a very dry, sultry spell here the latter part of last August, and up to that time the bees were living from hand to mouth. All at once they began storing from the cotton bloom, though it looked as though cotton was going to die in the fields from drought and heat, yet it yielded until the bees had stored from 30 to 60 pounds per colony."—J. J. Wilder, Cordele, Ga., American Bee Journal, page 141, 1906.

On suitable soils it is one of the most dependable sources of nectar:

> "The apiarist who has his bees located within range of extensive cotton areas can count on at least an average crop year after year, with more certainty than many of the other numerous honey yielders which we have."—Louis Scholl, page 652, Gleanings, 1912.

> "My main sources for surplus are mesquite trees and the cotton fields, cotton being the second of importance in the central and northern parts of the State, or throughout the black land region. On sandy or light soil, cotton yields very little honey. * * *

> "The yield is good, averaging about 73 pounds of bulk comb

> honey per year. One year it was over 100 pounds. Honey from cotton is very light in color, the comb very white, and of excellent flavor when well ripened. As soon as cool weather sets in this honey fairly draws out in long strings, when handled with a spoon."—Gleanings, page 1313, 1907.

From the above it will be seen that cotton honey is of good quality, at least in some localities. Samples said to be from cotton from Georgia, are strong and of rather poor quality, while cotton honey received from Texas is light in color, of mild and rather pleasing flavor. The honey from cotton granulates very quickly. That produced in the southeastern States also has the effect of bursting the containers, possibly from the effect of fermentation. The humidity of the atmosphere evidently has a marked effect on the quality of the honey from this plant. The following reports indicate the quality:

> "As to the quality of cotton honey, I can say from my own experience, that it varies in color from light amber to almost water white. While I do not consider it equal to white clover in flavor, it is superior to basswood. * * * The flow increases toward the last of the season, and if we can get two weeks of nice weather after frost it amounts to a considerable increase in the crop."—J. D. Yancey, Hunt Co., Texas. Gleanings, page 162, 1910.

> "It did well on our rich bottom land and yielded a fair crop of the finest honey it was ever my pleasure to see. It was so thick that it was almost impossible to extract it, and entirely out of the question to strain it through a single thickness of cheese-cloth. It was light in color, mild in flavor, and very heavy, and in my opinion superior to any honey ever shipped to this locality, not excepting huijilla. The long drought and consequent absence of all other bloom enabled us to get a purer cotton honey than we had ever been able to get before. Again in the late fall, when the weather began to get cool, our cotton took a second growth, soon blooming profusely, and by accident we got also a fair fall crop."—O. Saunders, Trenton, Texas. Page 734, Gleanings, 1910.

One great advantage of the cotton flow is its long continuation. In Texas it begins to bloom in May or June, and the bees work it steadily until late fall, often November. Extra cultivation or fertilization of the soil increases the vigor of the plant and the nectar flow is increased accordingly:

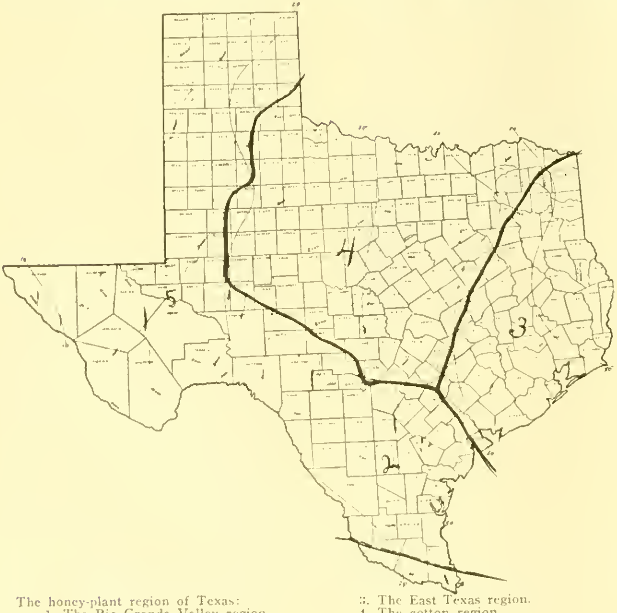
> "I can remember when the bees gathered only enough nectar from it to stimulate brood rearing, and now we get from one to three supers of surplus from this source alone. * * On land where we used to make a bale of cotton to 4 or 5 acres, now we make 1 to 2 bales per acre, using high grades of commercial fertilizer and more prolific varieties of the plant. It yields more where it grows best, and of a much longer duration."—J. J. Wilder, Cordele, Ga. Page 237, American Bee Journal, 1911.

Bees get nectar not only from the cotton blossoms, but from extra-floral nectaries as well. At times almost entirely, and to gather freely they seem to neglect the blossoms from the extra-floral nectaries. Some of these are located under the flower and begin to secrete nectar before the blossoms open. Others are located on the under sides of the leaves, and vary from one to three on each leaf. When atmospheric conditions are favorable, these glands secrete abundantly and the nectar gathers in drops. At times it is so abundant that the men cultivating get their clothes saturated with the nectar, while following the cultivator, from the brushing of the leaves against them. Later in the day the heat of the sun evaporates most of the moisture, leaving the clothing sticky. In hot and dry weather the flow is on in the morning and again in the evening, while in cloudy or damp weather it lasts all day.

When first gathered, the honey is said to be very thin and clear, with a strong and nauseating taste, resembling the taste of the plant itself. As the moisture is evaporated and the nectar ripened in the hive, this disagreeable taste is lost to a large extent. During a heavy flow a strong odor is frequently present in the apiary, which can be noticed at some distance from the hives. Scholl compares this odor to that of crushed cotton leaves. He reports that at times it becomes so strong as to have a sickening effect on the apiarist, even interfering with his work on calm days.

The heaviest flows come from rank-growing plants on rich soils, during warm and wet weather. At such times the honey is lighter in color and superior in quality, while the honey stored from plants growing on light soils during dry weather is darker and strong in taste.

Pollen from the cotton plant is white in color, and is produced in abundance from the large bell-shaped flowers. When the bloom first opens it is white, later turning pink.



The honey-plant region of Texas:
1. The Rio Grande Valley region.
2. The mesquite region.
3. The East Texas region.
4. The cotton region.
5. The West Texas region.

## A Wax and Honey Separator

By J. E. Crane

I HAVE had a good deal of prejudice for several years against a capping melter. Whether this was because I did not use it as I should or whether I had expected too much of one, I cannot say, for I had read how you could drop the cappings onto one as you sliced them from the well-filled combs, and at the end of the day have a nice lot of clean honey and a cake of wax ready for market. I found instead a lot of honey with more or less dirt in it and my cake of wax with either a large amount of dirt or slumgum mixed in with it, or a cake of wax where the dirt had settled to the bottom mixed with wax and saturated with honey. How to get out the wax and dirt and leave all the honey was often a question. Usually, I think, I tipped the cake of wax up on its side and let it drain until the next day. From some of the cakes I could scrape or chip off the dirty wax at the bottom and make them look quite respectable, fit to sell or ship to the manufacturers of comb-foundation. How many hours and days I have spent in cleaning the bottoms of cakes of wax or in melting them over and straining to get rid of the dirt, I cannot say.

Now there may be something in locality, and bees not make as clean cappings here as elsewhere, that may account in part for my troubles, but troubles they were, and so serious that I had gone back to my old method of setting the cappings to soak for a day or two in water and then pressing them and using the honey water to dissolve sugar in to feed bees. Or, sometimes, we put them in 10-gallon cans and set in hot water to melt and rise to top of honey. But with all our efforts there was some loss of honey and a good deal of vexation and loss of time. How many times have I said to myself "Oh, if we could only melt these cappings or combs and have the wax go one way and the honey another and the dirt and slumgum another, how nice it would be." Having some leisure this winter, I have given the subject some thought and have constructed an apparatus that has produced very satisfactory results.

As I had a small quantity of cappings on hand, some granulated combs with broken combs and odds and ends of wax and honey to separate, I constructed a new melter that I might try my wax and honey separator. When through I had perhaps 150 or more pounds of honey and nearly 100 pounds of wax and six or eight quarts of dirty wax or slumgum. I was pleased to see two streams running hour after hour from the separator, one of wax and the other of honey, and at the end to have my dirty wax all by itself. I was especially pleased to see my cakes of wax so clean and free from dirt. In nearly 100 pounds of wax I do not think there was a thimblefull, all told. It was by all odds the nicest lot of wax I ever made. It works automatically and requires very little attention. It will work hour after hour, or day after day, with almost no attention except to draw off the slumgum or dirty wax occasionally.

As the warmed honey and melted wax drip into it from the capping melter, the honey being much the heaviest, sinks quickly to the bottom, leaving any dirt it may have carried with it from the melter in the wax as it goes down, while the pure wax, being lighter than the dirty wax, remains on the surface and the dirty wax sinks to near the top of the honey. As it accumulates it may nearly fill the space above the honey, and should be drawn off through the lower spout by removing the cork, after which the spout should again be corked tight. The honey cannot be drawn off with the dirty wax, because it is heavier and lies below it, and the pure wax need not be drawn off with the dirty wax, as it rests above it. Neither can the wax and honey run out together, for they are separated by a metal partition.

It works by gravity, the honey, wax, and slumgum separating of their own accord in passing through the separator, each taking a different position and making it easy to draw them off into different vessels. The apparatus is quite simple and should not be expensive. The slumgum is mostly wax with a considerable assortment of dirt, which should be melted up in water and strained, when a considerable amount has accumulated. In running off nearly 100 pounds of wax recently I had only six or eight quarts of this dirty wax to remelt, a small job compared with remelting a hundred pounds of wax and straining or scraping the dirty wax from the bottom of the cakes.

Middlebury, Vt.

---

## Too Much Attention to Outdoor Wintered Bees

ABOUT Thanksgiving Day I packed four colonies in a dry goods box with the hives close together and about 6 inches of wheat chaff on top, bottom and all sides with an opening at the entrance. As we had no cold weather, they would come out and fly about a couple of days each week, the rest of the time it was rainy. About three days ago we had our first spell of winter weather, and as I was watching pretty close, I found that my bees were flying out at the rate of two or three every minute, with the thermometer at 20 degrees and with snow in the air. As none of these bees came back, I made a piece of fly screen to fit the entrance and put on each hive. The bees that found that they could not get out crawled around on the wire till they got cold and died. One hive had 35 dead the same day, one 6 and the other two about 15 each. The next morning two of the hives were much in earnest and were piled against the wire by thousands and were working like crazy to get out. I feared to remove the wire for fear they would pile out and die of cold, so I gave each a little smoke. One became quiet, while the other paid no attention to the smoke. At dark the screen was removed and the one which was the worst only had a few living bees. I found them in a hot mess of dead bees and honey all mixed. There is not a living bee left in that hive today. Do you think my bees were too warm?

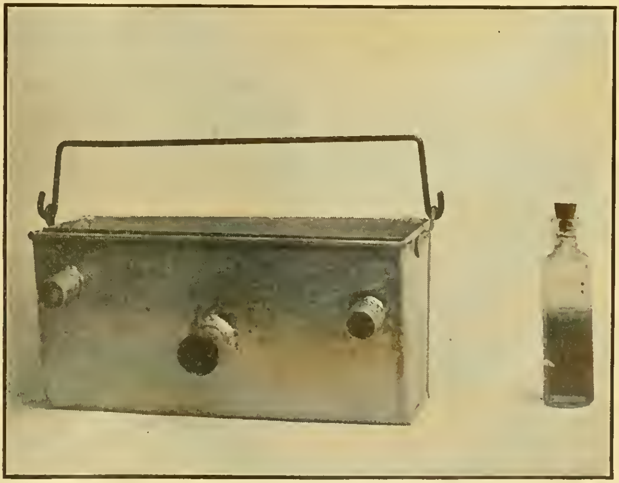
PENNSYLVANIA.

If there was no bad food, loading the intestines of the bees so that they were compelled to fly, this is simply a case of over-interference with the bees. They were so strong that an occasional bee would fly out. The loss would have probably been insignificant on that score if they had just been allowed to do as they pleased.

I have at all times noticed that the colonies which lose the most bees in the snow during the winter, from their insisting on taking flight when it is too cold, are the colonies that winter best, as the quantity thus lost is infinitesimal as compared to the tens of thousands remaining in the hive. Confining the bees against their will has never proven beneficial unless they may be confined so they cannot see the light at the entrance. Wire netting the entrance is the worst thing that can be done, even in shipping bees. If they are confined with netting, it must be over a space that allows the whole swarm to get to the light.

Of course, if bees are restless from bad food, that is another question altogether. In that case the condition gives but little hope of salvation.

In the very best colonies that I ever carried through the winter, the bees were warm enough that they would show themselves at the entrance in the coldest weather, if the hive was stirred ever so little.—Editor.



Crane's wax separator.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

| | |
|---|---|
| C. P. DADANT | Editor |
| FRANK C. PELLETT | Associate Editor |
| C. C. MILLER | Questions Department |
| MAURICE G. DADANT | Business Manager |

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

## A Mild Winter

Reports from many places indicate that the winter has been much milder than usual. Numerous reports express the fear that spring will find the bees short of stores and that feeding will be necessary. With bees flying nearly every day in January, it is not surprising that they soon began seeking for water and started to rear brood. Brood-rearing consumes honey very rapidly and beekeepers should have a care to make sure that all bees have plenty of feed. With bees in great demand and honey at high prices, it is poor policy to allow bees to starve for want of a little attention at the beginning of spring.

## Education for Disease Control

In several of the States good results are beginning to be apparent as a result of the efforts of the extension workers in beekeeping. If the beekeepers will bring pressure to bear on the extension department of every college to place an expert bee-disease man in the field, much can shortly be accomplished looking toward the control of foulbrood. The treatment of this disease is now so well understood that the important thing is to educate the mass of beekeepers in the proper means of recognition and treatment. The short-cut to control is by means of utilizing the machinery of the extension departments. No special legislation is necessary. All that is needed is to convince the proper officials that such assistance is necessary.

## When Articles Appear

We frequently receive articles of interest with the request that they be published in the next issue of the Journal. Our readers who have not had experience in getting out a publication cannot realize how impossible that may be. We often have several times the amount of good material there is room for and of course are limited to the 36 pages which constitute the Journal. It often happens that articles are set in type expecting that they will go in and then are crowded out for one, two, or even three months. We try to make use of as much of the material sent us as we can, and we very much appreciate the fact that our readers send us so many valuable contributions. We regret that it often happens that good articles are crowded out month after month. We try to publish all notices of conventions and other timely mention as quickly as possible. Questions for Dr. Miller's department are answered as nearly as possible in the order received. We have some good things on hand which we have held for many months which we hope yet to use.

## Openings in Florida Orange Groves

The Cincinnati branch of the bureau of markets has had several enquiries from citrus growers on the Indian River, Florida, in regard to the posibility of interesting beekeepers in establishing apiaries in proximity to their groves. We are not informed as to what sources of nectar are available after the oranges have stopped blooming. It might be well for beekeepers interested in Florida locations to investigate this territory.

## A New Sweet Clover Bulletin

We have just received a copy of Farmer's Bulletin 1005, entitled "Sweet Clover on Corn Belt Farms." This is a 28-page publication giving in detail the methods of cultivation of sweet clover as a farm crop. It is always to the advantage of the honey producer to encourage the growth of sweet clover as widely as possible. Those interested will do well to call this bulletin to the attention of their neighbors who are engaged in farming, as well as to write for it themselves. Address Division of Publications, U. S. Department of Agriculture, Washington, D. C., and ask for Farmer's Bulletin 1005.

## War Losses by Beekeepers

We have so far heard very little about war losses by beekeepers in the devastated countries. It is probably due to the fact that beekeepers are usually farmers and that these were driven from their homes, compelled to seek shelter far away, and in many cases uninformed as to their actual losses, until they returned to the despoiled regions. Here is one account just received by us:

"Arriving home, I found my house blown open and without roof; the furniture was all carried away, as well as the cooking utensils, linen bed-clothes, etc. We live here like savages, without clocks, without furniture, without linen, without utensils in which to cook. Mother has no clothes left. We had to put a roof on the kitchen and it is there that we live. We have less to eat than during the war and have just been 4 days without bread. No lights to the windows and no coal, and the weather is cold. The bees have been carried away; they have even stolen the empty hives. I had 10-frame hives and 20 skeps."

"ELIE LEMAIRE,
"Haussy, Nord, France."

Our Americans have been very generous; they have donated and are still donating, to the Red Cross, to the Belgian and Serbian relief committee, to the Y. M. C. A., the Y. W. C. A., the fatherless children of Belgium, France and Serbia, etc. But there is still an immense amount of suffering and room for help from generous hearts. The above is an instance among the many. The suggestion has been made that a subscription be opened among American beekeepers for their suffering brothers of Europe. The funds could be placed in the hands of some leading European Association for distribution to the needy. But the subscription should be worth while. What do the American beekeepers say?

### March Beekeeping

While in the South the bees are beginning to make honey, in some places preparing to swarm, in the Middle and Northern States March is the most critical month of winter. Many a colony which has apparently done well through the cold months begins to dwindle in March. The hive may be short of stores, if not well provided in the fall, or the bees, while rearing brood, may make too many trips for water in a half sunshine on cloudy days and become chilled before getting back home.

Sometimes a remnant of winter, a few days of exceedingly cold weather compels the bees to again shrink the cluster to the compactness of cold weather cluster. If the weather continues cold, they may starve with honey almost in reach.

At this time, more than at any other, populous colonies prove best. They eat less than weak ones, keep their brood warm and can afford to lose a few bees of those who venture out after water and early pollen.

If they are plentifully supplied with honey and breed vigorously, the bees may be kept contented at home if a little thin, warm syrup is given them in the evening. They should not be fed in day time, for fear of inducing robbing.

Do not remove bees from the cellar until a warm day comes. If possible, put the colonies back on the stand they occupied before winter. We have very positive evidence that some of them, at least, remember their fall location.

### A French-Canadian Bee Magazine

"L 'Abeille" (The Bee), a 12-page magazine in the French language, made its bow to the beekeepers of the Province of Quebec in January, too late for review in our February number.

"L 'Abeille" is published under the patronage of the Ministry of Agriculture of the Province of Quebec, by Mr. C. Vaillancourt, chief apiarist of that Department, at Quebec.

It is too early to judge of the future of this magazine. But we know that the Province of Quebec, in the short summers that it enjoys usually furnishes as much honey, to the bees, as some of our most favored regions. To illustrate this, we will quote from a private letter to us, from Mr. Jacques Verret, concerning the past summer, which was very unfavorable:

"Our crop has been poor, an average of 30 pounds per colony, with an increase of only 35 on an apiary of 89 colonies. The colonies sold brought $15 each and the price of honey is from 25 to 28 cents per pound. For the year 1919 we are asking $21.50 for colonies of common bees and $25 for Italians."

If we figure that the expense of hives and supplies for colonies amounted to half the selling prices, which is certainly sufficient, there was still a profit of over $10 per colony, spring count, on this Quebec apiary in a season much under average.

This indicates a thrifty condition and is surely an inducement for the beekeepers of Quebec to sustain a magazine devoted to their industry. We wish the new magazine good luck.

### A New Interest in Bees

There never was a time when our educational institutions were giving so much attention to bees as now. More than half of the agricultural colleges now support beekeeping courses. Boys' and girls' bee clubs are becoming popular and beekeeping short courses and conventions are matters of every-day occurrence. Following the California series of short courses for commercial honey-producers, the University of New York offers a similar course. Short courses of a more general nature are also offered at Kansas and Ontario Agricultural Colleges. It is expected that several other States will announce such courses for the spring months.

In times gone by conventions were infrequent and the journals reported the proceedings rather fully. To do that now would be an impossibility, since state and county meetings of beekeepers are held everywhere with increasing frequency.

### A Franco-American-Palestine Beekeeper

We quote the following from a letter of our old friend Ph. J. Baldensperger:

> Nice, December 2, 1918.
>
> Received your kind letter of November 2, a few days in advance of the number containing my article on Punics, and was glad to see that you appreciate fully my views, in another article from your pen.
>
> We have them at last; thanks to the Yanks, in a great measure, and we have our Alsace-Lorraine back again. When I was a boy, in Jerusalem, I heard that ghastly music of the "Sedantag." I went to France in 1875 and enlisted for five years, hoping to take back the lost provinces. But it was too soon. Back to the Orient, in 1881, I first read the American Bee Journal and Gleanings, when I met D. A. Jones and Benton. Then I became engaged to an American young lady and married her in 1884.
>
> This sealed my alliance with America. Now the dream has come true. Vive la Republique Universelle.
>
> How much I was touched by the letter of Sevalle, in the September number, I cannot express; but your broad views on our future humanity almost surpassed me. Yet I heartily thank you for your idea of inviting all beekeepers at one table, not omitting * * * Berlepsch and Dzierzon. That was grand, at a moment when the armistice was not yet signed, not yet in view.
>
> We are expecting your President, and hope peace on earth will be restored for good.
>
> Thanking you once more, I am,
>
> Ph. J. BALDENSPERGER.

### Downward Trend of Prices

As this is written newspaper reports announce a sharp decline in the piece of butterfat, with the further statement that a second drop is to be expected shortly. Several other articles show a downward trend. As yet there has been no decided drop in honey prices, owing to the fact that the supply in the hands of the producers has almost been exhausted. A few concerns are offering honey at slightly lower prices and it is not to be expected that the present extremely high quotations will hold for another crop. There never was a time when beekeepers needed to organize as now. Within a few years past honey sold at ruinous prices, which were shortly followed by prices higher than the most optimistic thought possible. It is highly important just now that the beekeepers take prompt action to stimulate interest in the use of honey as a staple product to prevent the return to the disastrously low levels of the recent past.

When the new crop starts to move the test may come. If there should be a decided break in market prices it may be hard to raise again to a living scale. Beekeepers should study advertising during the coming months as never before. We don't expect war prices but we must have a profit above the cost of production. We cannot afford to let the public forget to ask for honey.

# BOYS' AND GIRLS' BEE CLUBS

## An Account of a Most Successful Bee Club Which Under the Leadership of Charles A. Boyle, is Attracting Nation-wide Attention.

ONE of the most practical educational enterprises of recent years is the boys' and girls' club work. The success of the corn clubs, pig clubs, calf clubs and canning clubs has been remarkable. The bee club offered some more serious obstacles, but it has remained for Charles A. Boyle, of Kansas, to make it a success. Boyle is the district club leader at Emporia, and became interested in the possibilities of bee clubs early in his experience as a club leader. Several bee clubs were started by others only to fizzle out, or had secured a very moderate degree of success. The difficulties became more apparent after the work was under way, and he decided that the bee clubs are of sufficient importance to justify specializing with them. Mr. Herbert Popense, County Agent, has actively co-operated with Mr. Boyle.

To avoid possible disappointment, boys or girls whose parents did not already have bees were not encouraged to take up the bee club work, but rather something with which they were already familiar. The design was not to induce more people to keep bees, but to improve the beekeeping on the farms where bees are kept. The results are particularly striking, because the work is being carried on in a county where there was, at the time the clubs were organized, no commercial beekeeping. Most of the bees were kept on the let alone plan. As is usually the case in such communities, no way of production was known except to put sections on the hive and take what the bees placed therein. In a good season, a super or more of honey was secured; in a poor season, nothing. Swarms were the rule, and the profit shown by the bees was not such as to encourage a large investment in beekeeping. The enthusiasm shown for the bee club was not great the first season. It was necessary first to demonstrate the possibilities of beekeeping with up-to-date equipment and methods.

The club was organized in the spring of 1917 with twelve members. On the advice of Mr. Boyle, all joined in the purchase of an extracting outfit, which was carried from place to place and used by the members as needed. This reduced the expenditure for equipment much below what would otherwise have been necessary.

The leader was wise in inducing the members to begin by producing extracted honey, for the production of comb honey is a skilled operation, successful only in the hands of an expert. The purchase of a partnership extracting outfit also, by reducing expenses, made it easier for some of the boys to get started.

The writer enjoyed two days spent with Mr. Boyle and the club members last June. The zeal of the members was contagious, and he returned home very enthusiastic for bee clubs. A good leader is essential, for there are so many perplexing problems, which the novice is called upon to meet, that he is likely to become discouraged if left to himself. Mr. Boyle makes frequent visits to the members and assists them with their problems. One boy says: "I am thinking about getting some of my chums to go into the bee contest next year, as we get acquainted with so many boys over the country when we have club meetings. Then Mr. Boyle, our County Club Leader, takes such an interest in us that it is a real pleasure to take an afternoon off and go with him to see what the other fellow is doing."

Who doubts but that this boy gets a lot of fun from his bees?

The parents all seem as enthusiastic as the club members, appreciating the value of the effort on the part of the youngsters. The success of the first year can be measured somewhat by the membership of the second year, increased from twelve to fifty, only three of the second year members failing to complete the season's work.

The boy who has bees in a standard hive at the beginning has an advantage as far as the showing from his crop is concerned, but he misses some experience which the box-hive member gets. As soon as conditions are favorable, the bees in boxes are transferred to standard hives, with full sheets of foundation. The members are required to keep an accurate record of the cost of the whole transaction from the beginning to the end of the season. The value of the colony is estimated at the start, cost of equipment added, and this is deducted from the value of the honey harvested, to show the actual net profit secured. The members are thus given a sample of good business methods. They are furnished with blanks to be filled out at the close of the season, showing in detail the practice followed, amount of increase and honey, price for which it was sold, kind of equipment used, etc. In addition, each member writes a story of his beekeeping experience, following an outline furnished by the leader.

The boys like to compare notes on irequent occasions.

The girls are as enthusiastic as the boys.

These reports make interesting reading. The boys tell intimate experiences which are worth while, in addition to the profits from their venture. Except in a few cases, the members paid all expenses for new equipment, and showed a substantial profit besides. Although the past season has not been favorable for honey production, being below the average, the extremely high prices prevailing have been very encouraging to those who have had honey for sale. The first prize winner, Dale Stout, showed a profit of $39 from his colony, with 130 pounds of honey sold at 30 cents per pound. Since his colony had paid for itself the previous year, his venture showed no expenditure. Edward Palmer came next, with a total income from his colony of $37.50 and an expenditure of $3.85, leaving a profit of $33.65.

Clarence Morlok has reason to be proud of his record, as he was able to produce 113½ pounds of extracted honey from his one colony, while his father only had 200 pounds of comb honey from 14 colonies.

One boy was ridiculed by a neighbor for taking up with Boyle's newfangled notions. This boy produced more than twice as much honey from his one hive as the neighbor did from fifty colonies. "He who laughs last laughs best."

When Samuel Wingert decided to join the bee club his father was not much impressed, and thought he could buy enough honey to last the family two years with the money the boy proposed to put into new equipment. Mrs. Wingert sided with Samuel, and he started out to see what he could do. After paying back the money which his mother advanced to buy the hives, Samuel's bees did so well that the best colony showed a profit of $19.30, with the second one nearly as good. Samuel is to be congratulated in justifying his mother's faith so abundantly the first season.

Edward McMilland, Clarence Gladfelter, Lester Ptacek, Edwin Collins and James Morris all showed a profit of at least $18 from their best colonies. Some of the members had only one colony, while others had several. The contest was for largest production from one colony.

The Emporia Gazette called the club members "the Honey Bunch," and gave an extended account of the season's work. The influenza epidemic prevented the display of the product, which had been planned for early fall.

There is no means of estimating the value of such work among the young folks. They are taught the best methods of caring for the bees, and whether they keep only a few colonies to supply the family table or take up beekeeping seriously, they will be prepared to get the largest return for the labor expended. In spite of the fact that the boys were in a contest to show the largest production, one boy writes that he left an extra super of honey on the hive for safety in wintering. He reasons that, if it is not all needed, he can remove it at the beginning of the honeyflow next June. Here is an important lesson for many an old beeman. With prices ruling high, there is a constant temptation to remove the surplus too closely and thus deprive the bees of a sufficient reserve with which to build up early the following spring. Many a good crop is lost because the beekeeper is too short-sighted to provide for next season at the close of this year's crop.

The members of the Lyons County Bee Club may rest assured that the American Bee Journal is watching with much interest the growth of their club. The writer expects to visit them again in the future. We confidently predict that some of the members will make expert beekeepers, who will produce honey by the car load ere many years.

## Progressive Beekeeping in Mexico

By P. Provensal

In November, 1917, I had the pleasure of making the readers of the American Bee Journal acquainted with some of the conditions of beekeeping in Mexico and the chances of success.

Perhaps in these times of food shortage and economy, when such great efforts are made to produce a sufficiency for the world, a detail of a two years' experience in Mexico will illustrate the possibilities of beekeeping as a "side line," in order to increase the production of honey.

First let me repeat what I find in "The Hive and Honey-Bee" by Langstroth and Dadant: "The sooner those abandon beekeeping who consider the proper care of their bees as too much trouble, the better for themselves and their unfortunate bees." I believe that beekeeping, for the beginners as well as for the professional beekeeper, is a science of detail, of daily attention and of constant study.

Having had occasion, during my travels as professor of the French language, to visit a number of well-managed apiaries and to be present at diverse manipulations, I became convinced that those alone who take enthusiastic interest in the bees, who care for their apiaries and look after the needs of the colonies, can be successful in beekeeping

After settling in Uruapan, where many fruit trees grow, such as orange trees, citrus fruits, etc., I concluded to buy a hive of bees. At the same time, I read several bee-books: "Las Abejas," by J. De Boer, a well-printed book with abundant illustrations, sold for $1 by the Agricultural Department of Mexico; "Bees," by Dr. E. F. Phillips, of Washington, Farmers' Bulletin No. 447; "First Lessons in Beekeeping," by C. P. Dadant; and lastly "L'Apiculture Moderne," by A. L. Clement.

A little later I bought from a "ranchero" some 20 hives similar to those

Mr Boyle makes frequent visits to the members of the club and assists them with their problems.

shown on the cover page of the American Bee Journal of July last, tree logs, square boxes, etc. The first ten hives were brought to me on the backs of donkeys, with an experience similar to that related by my friend Brenner, in San Domingo, page 194 of June, 1918, but with poorer luck, for he had them all delivered in good condition, while I lost four of mine through the breaking of the combs and daubing of the bees with honey. The other 10 colonies were delivered in good condition, having been brought on the backs of human porters, at great cost.

I transferred all those colonies after the method described in Dadant's "Bee Primer," into movable-frame hives, with very good success and the honey which I saved in the transfer was sufficient to make up for the four colonies lost in transit.

I then increased my colonies by artificial divisions, and succeeded quite well, so that in March, 1918, I had 50 colonies and had more than doubled my capital, besides averaging about 20 pounds of honey per colony and at total of 30 pounds of beeswax. I do not know of any business in which the profits can be so large in so short a space of time.

I do not wish to go beyond 50 colonies, first because I am a "side liner" and have other occupations. Besides, I am as yet uninformed as to the real resources of the country, in honey. I will learn more during the present season, which began in September and will end in March.

In the picture shown (cover page), the covers have been removed from the front rows, so as to show the style of hives which I use.

The parts which support the hives are intended to keep them out of the moisture, for in the rainy season it rains every day, and the soil is constantly damp.

My apiary is in the suburbs of the city of Uruapan, in a garden planted with divers fruit trees, as are all the gardens in the vicinity. We have several important sources of honey, chayote and chayotello, which yield white honey; later the orange trees and other citrus fruits, but it is difficult to have honey specially from one kind, as all bloom about the same time.

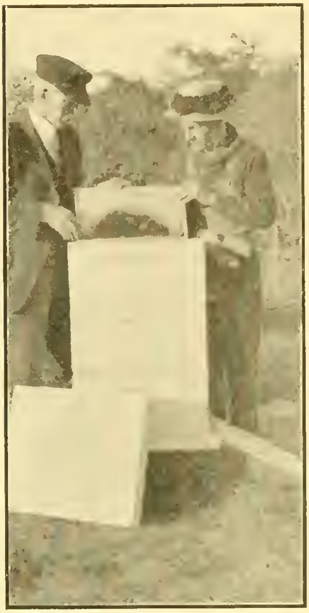
The roofs of my hives are made with thin shingles, "tejamanil," much as are used all through Mexico, on cottages. The temperature of the hives is much lower under them than it would be in the open sunshine, in this hot country.

Uruapan, Mexico.

## Getting Colonies Ready for Honey Flow

By Joseph S. Scott

I THINK that I have read somewhere that the bees should be at a certain point of development, in the spring, after the winter's decline and that they should reach this point just as the honey flow comes. Is this so? Will a week later or a week sooner do? I think that all will concede that if the bees in a hive reach their highest development or the point in question a week later than the beginning of the honey flow they will certainly not gather the crop that could have been gathered had they been at this point a week sooner. Now let us suppose that they reach this point a week before the flow comes, what will the result be? Can they be held at this point? Will a hive of bees that reaches this point stay there for a week and then gather a full crop of honey, even though they show no inclination to swarm?


The club leader insists on full sheets of foundation, wired combs and up-to-date equipment. These boys will make expert beemen.

I don't think so. I think that we have got to get the bees in a certain condition to gather honey and that if the flow is a few days later or sooner than this point of development we will lose a large part of the crop.

What this point is that I am talking about I can hardly say; but it is at a stage where there are more bees fit for the field than at any other time. The point is reached by certain things; first, the daily laying of the queen, the proportion of eggs to larvæ, to nurse bees, to field bees, and there i only one time for it after the bees start their activities in the spring. A few days later may show more field bees, but more of them may be required as nurse bees, or, in other words, where there are more field bees there is a shortage of nurse bees, and so no more, nor probably as many, field bees would or could go to the field.

"There is a tide in the affairs of men which, taken at the flood, leads on to fortune." Is it not true of bees?

I know that this spring I stuck pretty close to 200 hives of bees and all had plenty of stores; in fact, I took a lot away from them after spring had opened, and they were getting a little scattering nectar. On the 31st of March I wrote to a friend of mine and told him this: "If the tupelo comes tomorrow week (April 8), I think that my bees will be in a position to get every drop there is." Instead of the 8th, tupelo began on the 4th. I put a hive on the scales and on the 5th they gained 5 pounds; on the 6th 7 pounds; on the morning of the 7th it was raining hard and rained all day and turned cold that night and there was heavy frost, with high, cold winds for three or four days, and the bees did not get out until about the 14th. A few hives swarmed the following week, but here is my crop record: Out of three yards, with 70 hives in each, one yard had three hives with a super full each, one yard had four hives with one to two supers full each, and one yard had six hives with a super or two each, and the rest of the hives in these yards only gave me an average of five pounds to the hive.

Now, there you are! Thirteen hives gave me an average of at least 40 pounds to the hive and the rest gave me an average of about five pounds. Thirteen hives against one hundred and ninety. I know that these were not in any better shape than the rest. I am not certain, but suppose that they were not in as good shape when the flow started, but developed to this point during the cold spell, and so were in shape to get this honey when it warmed up, while the other hives, that were in better shape, had passed this point of development and so went to pieces, or did not get honey that was there for them to get.

If I am not correct in my deductions, will some one please explain this to me:

Why is it that of two hundred hives of bees in fine shape, only thirteen gather any surplus to mention, after a week of unfavorable weather?

Could the queens, during the three or four days of the beginning of the flow, have taken a spurt of laying that would give a very much larger number of larvæ to feed, that this increased number caused too many old bees to act as nurse bees? Or could the bees, after being confined to the hive for a week, sulk and refuse to take much part in gathering a crop?

I do know this much, I lost my spring crop with plenty of bees to gather it, and would like to know the reason why.

I also would like to know what I could have done to prevent this or a recurrence of it. It is very probable that such a case will come up again, as the weather is always very uncertain in early spring when tupelo is due to bloom, and if I can "hold the bees" I want to know how.

While the cold spell caused a few to swarm, out of the 200 only about

25 swarmed, which I think is not unreasonable when you think of 200 hives ready to gather a crop. It is very reasonable to suppose that that many would get the swarming fever over being crowded and having to stay in the hives inactive for nearly a week. At least I looked for more to swarm.

I can look ahead and judge very closely when tupelo will begin to yield. I can also get my bees in a very fair shape to get this honey when it comes; I will never hope to have any bees in any better shape to gather a honey crop than I had mine last spring.

They had the bees, they were not short of room. All were run for extracted honey and all had mostly drawn combs. Those that did not have full supers of drawn comb had at least 80 per cent drawn comb and the other 20 per cent full sheets of foundation.

I have come to the conclusion that the psychological moment for the bees and the honey flow did not come together; that is, the bees were kept from working for a week and when they did work, the chance had gone. Counting out those that swarmed I still had a percentage of 87 that were in fine shape to get the nectar, but only 7 per cent did get the nectar.

Mt. Pleasant Ala.

# BEEKEEPERS BY THE WAY

Demuth explaining the mysteries of the hive.

### A Great Beekeeping Teacher

When a fellow settles on his life work early, he gets a good start toward his goal, while his schoolmates are experimenting with various possibilities. George S. Demuth took up beekeeping at 14 years of age and paid for his first colony by making fires and cleaning the school house at 5 cents per day. It took 110 days' work to raise the $5.50 necessary to get that first hive of bees. It took the savings of another long period to get the dollar necessary to pay for a year's subscription to the American Bee Journal. To the impatient boy, the period between the time when the dollar was sent and the first copy arrived was one of the longest in his life. From a neighbor he borrowed Gleanings so as not to miss anything worth while in the way of beekeeping lore.

With a net increase of three swarms and the sale of $6 worth of honey from the one colony the first year, the venture may be regarded as successful.

We next find him rigging up a home-made saw, with a mower wheel to furnish the power, to cut out sections from basswood cordwood. Later he made hives for all his neighbors and soon was embarked in the supply business on a great scale—for a boy. The time soon came when the supply business was a nuisance to him, because it interfered with his beekeeping, and he dropped it.

Demuth is one of the most expert honey producers in America and has practiced migratory beekeeping in Indiana for more than twenty years. In the natural order of events he was selected as State Bee Inspector of his State and served in that capacity for three years before he went to Washington as Assistant Apiculturist in 1911.

Those who have seen him at conventions and short courses are enthusiastic about his work as a teacher of beekeeping. Seldom do we find the practical and theoretical so fully combined in the same individual. Demuth is a great beekeeper and a great teacher.

## Bee Paralysis

By H. Brenner

ABOUT eight or ten years ago I read for the first time of the damages wrought by paralysis in Australia and saw descriptions of whole townships totally swept clean of bee life as a result of it. About four years ago, in early spring, in our home apiary, about one-half of my own colonies became affected with it, but without serious resulting harm, as the disease soon disappeared of its own accord without any treatment of any kind by me. This caused me to study the disease to ascertain the reason why in Australia the colonies should be killed out and why in my home yard only a few were affected, and even they soon shook off the symptoms of the disorder.

My records showed that those affected by the disease had been fed at the end of January and early February with a thin honey and watery syrup. We had reduced one part honey with three parts of water and had made a very thin nectar-like solution. It happens that we extracted these colonies late in the previous fall, honey being in great demand and very high in price in our local market. We noted that every colony which we fed in the early spring for brood rearing developed symptoms of paralysis. At that time we fed with Alexander feeders, and I noticed after a few days of feeding that there was a smell as of vinegar or fermentation in the apiary, but at the time I paid no very great attention to it, as the bees seemed to be doing very well and brood rearing went right along with apparently good results. When, later, the paralysis became apparent in the yard it gave me the first idea that soured honey might be the cause of it.

During a visit to California three years ago, one of my hosts called my attention to a bad case of paralysis in one of his apiaries. I remembered my own experience and advised him to fill some combs with fresh sugar syrup and put it in the brood nest. He did so and the disease immediately disappeared.

Last year I came across an article by our Mr. E. G. Le Stourgeon, in one of the southern agricultural papers, disclosing May sickness, or bee paralysis. Le Stourgeon knows the theories and writings of every writer on bee culture, so that he can quote verbatim from Crane, Dr. Miller, Doolittle and other authorities, and he swears by them. In consequence, he referred to and described the bacteria theory, the apparent epidemic nature of the disease and such cures as the sprinkling with sulphur, etc., but he inclined to the belief that excessive dampness in the hives, causing moldy combs and damp air, was the cause of the disease. I told him that this was not the case with our Texas and southern California paralysis, and I believed it was nothing but bad stores or fermented nectar, which are only used by the bees when there are no good stores to be had, that cause the disorder. We argued quite a while over the matter till I proposed to take the stores out of a strong colony and feed some soured nectar to prove my contention as to the origin of the malady. We selected a strong, healthy colony and in a few days I produced for him a perfectly typical case of paralysis. We had good luck, too, for the experiment, as we had a spell of bad weather during which the bees could not fly and bring in new, fresh nectar from the fields. The bees will positively not use inferior or damaged honey if the hives contain good food, or if a source of supply is available. If the bees upon which we tried this experiment could have brought in nectar during this time I do not think the disease would have appeared, as the nurse bees would not have used the soured stuff we furnished them. They will store any sweet available at any time, but will use only the choicest for brood rearing.

After it was established to the satisfaction of Le Stourgeon that I could produce the disease at will he raised the point that where the disease was a menace to beekeeping it had been described as being of a more or less epidemic nature and that some had even claimed it was contagious. I then took the combs from the diseased colonies and gave them to others in the apiary which had plenty of stores and at the same time gave the diseased colony some sealed frames of honey and a frame of freshly made sugar syrup.

The result was the immediate recovery of the diseased colony, and none of the others developed the symptoms or appeared in any way affected by harboring the diseased combs . This disposed of the contagion theory and the epidemic feature.

So far as our portion of South Texas is concerned, and considering my experience in Southern California, I would say that there is no use being at all anxious about this disease, as the smallest amount of good, wholesome honey or nectar furnished to an affected colony will immediately stop its course. In fact, in our own apiaries we do not pay any attention to it, as we have always, in fair weather, some nectar coming in. The presence of new nectar, or of good, wholesome stores, causes the disease to immediately disappear without any aid or manipulation on the part of the apiarist. Often, late in the fall, and sometimes in the early spring, we cannot prevent the bees from gathering sour syrups or sweets that will sour from fermentation, such as decayed fruits, melon rinds, etc.

The above observations cover my knowledge of the disease in the South. I do not doubt at all the experience so often described by others, and it may be possible that there are two diseases with practically the same symptoms. The best authorities on bee culture seem to feel pretty well assured of the epidemic, if not actually contagious, nature of the disease, and some of them place its origin in a specific bacillus as a well demonstrated fact. They may be correct, but I feel thoroughly convinced that I have discovered the cause and cure of the disease, as I have seen it.

One thing I wish to partiularly emphasize, in my belief that it is the use of soured honey in brood rearing that causes the disease, is the fact that I have never noticed a nonplumaged bee to have the swollen abdomen and other symptoms. I think that only the nurse bees are affected and then only when they are preparing food from unfit stores for the young. The young brood is also not damaged in a colony having the disease, and apparently it is while the soured nectar is in the stomachs of the nurses that the harm is done.

E. G. Le Stourgeon says:

"Our own experience has been that this disease only appears in damp weather, or just after a protracted rainy spell, and usually upon examination of the affected hive we have found it to be one of the most populous in the apiary and that some of the combs are musty from lack of ventilation. This suggested open ventilation and sunshine as a cure and many experiments have proven it. Our opinion is that soured or partly soured honey is eaten by the bees, causing the paralysis above described. A few days of good hot sunshine will usually check the trouble. The cure can be aided by transferring into a dry, clean hive and providing plenty of ventilation. Especially is it well to raise the hive off the damp ground."

If Mr. Le Stourgeon's plan of treatment should prove equally effective in other hands, beekeepers will owe him a debt of gratitude, especially those living so far south that bee paralysis is a very serious matter. But it need not be wondered at if there be some skepticism in the case, since so many cures have heretofore been offered with great confidence, only to fail when tried later. The sulphur treatment has been given, not because very certainly known to be infallible, but because endorsed by O. O. Poppleton, one of the reliable veterans of great experience.

"The statement that bacilli are to blame for the disease is given on the authority of Cheshire, who, on page 568, Vol. II, describes the disease and says that in every case he has found the diseased bees filled with a bacillus that he has named Bacillus Gaytoni. It may not be out of place to remark in passing that even if Mr. Le Stourgeon should be entirely right as to sour honey causing the disease, that by no means establishes an alibi for the bacillus in question."

C. C. M.

(Let us add, also, that the Isle of Wight disease, which is very similar to paralysis, and to the May disease of the European continent, is certainly a contagion for which the "nosema apis" has been held responsible. We are still in the dark on all these points.—C. P. D.)

## Introducing Virgins

I HAVE just been reading the American Bee Journal, and find an article with this heading: "Care of Queens," by C. C. Miller, where a correspondent asks: "Could you not give some advice in the American Bee Journal as to how virgins should be handled from the hatching cage to egg laying?"

The doctor and the editor seem to think it is rather a knotty problem to introduce virgin queens. (January American Bee Journal, page 17.)

Allow me to answer that question.

Let us suppose I have 12 virgins, all hatched. I want these queens introduced just as soon as I can do so, but some other work may delay the game, and I won't have the time to spare until some of them are 4 or 5 days, perhaps 8 or 10 days old. I don't worry about them, having them caged with plenty of food in the cage.

When I have the time to do this little stunt of introducing, I go to a strong colony, touch them up a little with smoke, knock a few times on the hive to let them know I'm coming, so they will eat a little, and be in good humor when I get inside. I first look for the old queen and place the frame she is on outside of the hive opposite the side I am working, so she will be safe. I have a box made of screen wire the same as bees are shipped in when sold by the pound, with a hole in the end of the cage, the wood part, which admits a large funnel, 12 inches at the top, tapering to about 2 inches at bottom. This funnel is placed so the small end will go down through the hole in the cage for 3 or 4 inches, so the bees can't find their way out. The box also has a large lid for removing the bees when desired. Be sure and have this funnel-box ready before doing anything with the bees.

When the frame with queen and adhering bees is placed gently outside, lift out another frame that is well covered with bees and shake them off the comb into the funnel, so they will all tumble down through the hole into the cage. Then get another frame covered with bees, and do likewise. Then put the queen back where you got her and close the hive. Proceed to another strong colony and do the same thing; keep going till you have about 3 quarts of bees in the cage. I never take more than 2 frames of bees from each colony. Bear in mind the bees that go through the funnel are so frightened that there is no danger of their quarreling.

Now take out the funnel and close the hole so the bees can't get out.

Take this cage of bees to the cellar, or any dark, cool place, and leave them there for about 24 hours. I have been successful by leaving them there for only 8 or 10 hours, but I believe 24 hours is safer.

Have in readiness 12 small boxes about 6 inches square, with an entrance about 1 inch long by three-eighths of an inch deep, covered with screen wire; drive tacks in the bottom of these small hives, so that they will extend up from the bottom one-fourth of an inch. This is for 3 1-pound sections to rest upon, close to the back of the hive. Have one section full or honey; the other two empty; or have the center one empty anyway.

Place these small hives where you want them, 3 or 4 feet apart. Now get your virgin queens, cages and all, place them in a basket, or in your pockets. Then get your cage of bees that is in the cellar, carry it out to the little queen-mating yard, set your caged bees down, sprinkle them with water, just enough so they cannot fly; shake them up and down in the cage till they all look pretty wet (of course not too wet). Now take the lid off the cage and scoop out about one-half pint of bees and drop into the little hive. Shake one of your virgin queens in with them and close the hive. The next day take away the screen wire from the entrance and your little swarms will go to work. In about a week you will find a nice laying queen.

As soon as you find eggs in the combs, remove the queen, and introduce her to a stronger nucleus or full colony; for if you leave her with such a small colony she seems to get dissatisfied, and some way disappears. I generally start new colonies with these small ones by placing the 3 sections, bees, queen and all, in a standard-size hive and give them a frame of hatching brood from some strong colony. Just set the sections in a row, along beside the frame of brood, and slip in a division-board. You can soon build these nuclei up to good strong colonies by adding brood and honey occasionally. Of course, you can make these nuclei as large as you wish at the beginning. I only suggested one-half pint of bees for convenience. But don't give them any brood or eggs, for they will sometimes kill the virgin queen if you do.

I consider this method absolutely safe for introducing virgin queens, or laying queens, and I believe it is the best and safest way to introduce queens of great value. These small nuclei can be made with wire screen bottoms so, when the queen is removed, you can unite them with another colony, if you wish, by placing them in an empty super over the colony, having the wire cloth bottom next the frames, and leaving them thus for two days. Then smoke them a little and release them. I find this a pretty good way to introduce the new laying queens. Of course, I kill the old queen first, or about 24 hours before releasing this small nucleus.

RAY MOORE, New Salem, Ill.

## Fumigation for Bee Disease

HAVING observed that modern disinfecting for disease is generally carried out by means of fumes and not by sprays, this set me to thinking as to what gas to use for Isle of Wight disease, the first symptom of which seems to be "crawling," and then the bees disappear; in fact, the symptoms seem to be similar to what I read lately in one of your papers about 'Disappearing Disease." I decided to try the fumes of chlorine as given off by commercial chloride of lime, known also technically as 35% bleaching powder. In 1917, early June, I saw my bees crawling about the walks, so on the principle of "kill or cure" I laid half a teaspoonful at the hive entrance and awaited results. Greatly to my surprise and delight the bees seemed to quite approve of the perfume and apparently tasted the chloride, at the same time fanning furiously. On seeing such a result, I put a ridge of about half an inch in front of the hive entrance, so that every bee entering or leaving had to pass through the fumes. Crawling ceased in a day or two and my stocks did well as long as the good weather lasted and came through the winter well. Here I may say that our bees are wintered in the open and fly any fine day; mine were all flying on the 15th of December.

Along last spring I cleaned the alighting-board frequently with a solution of chloride till May. In June I got a new stock, which had swarmed on the 6th, and it did very well, and all was right on the 18th, when the weather broke down, and from then until July 3 they did little but keep themselves. The morning of July 3 being fine, I went to inspect and found this lot crawling in all directions. I at once put down chloride, and things became normal in a couple of days. The summer continued the worst on record, however, and I did not get a good harvest, but, as already said, these stocks are all well today.

When I discovered this disease I went round my neighbors, to find any number of stocks similarly affected; most cases were sudden, but three had been bad some time. In cases where chloride of lime was applied, crawling ceased, same as with mine, and a small crop was gotten. In cases where no chloride was laid, crawling ceased in 6 to 8 days so long as the queen was getting plenty, but the disease broke out again later on honey flow failing, and in one apiary I know of, these non-treated stocks are now dead—about 6 stocks.

The three cases of undoubted Isle of Wight were in the hands of good, keen men, and in addition to the outside treatment they put about one-quarter ounce doses inside the hives fresh every week and also fed lightly. In all three cases crawling ceased, and today bees are alive and apparently doing well.

The results obtained here make me venture to suggest that some beekeepers, better up in the strengths of disinfectants than I am, and able to follow up with research, might try the effect of these fumes in a pure state upon old combs, without bees, known to have had foulbrood.

In any case, it is my intention to fumigate all my combs with gas before I put them into my hives next summer, for wherever a spore finds its way the gas can penetrate, too; but not by any means is this the case with an atom of spray which is much larger, and I also think it might be worth a trial to give small doses to the stocks themselves.

T. T., Broomend, Scotland.

(We submit the foregoing, though we have but little faith in drugs. Yet, Chas. Muth, Hilbert, Bertrand, Cowan and Cheshire have succeeded with them, after long battles. We have thought enough of their success to mention their methods in the "Langstroth Revised." But for popular, positive success, we know of no method that will succeed except destruction of the combs, in American foulbrood. Isle of Wight disease does not exist in the United States; the disease paralysis is not of long duration, neither is it as damaging.

Great Britain is trying all sorts of drugs, if we judge by the advertisements in the British Bee Journal: "Izal," "Yadil," "Bacterol," etc., have all been praised, but has success crowned the efforts? We will be glad to hear of further experiments.—Editor.)

## Bees in National Forests—Best Bee State

"I would like you to advise me through your valuable magazine which is the best State of the United States for beekeeping. Is California or Florida considered better than the others? Can one use the vacant Government lands of the National forests for beekeeping?"

Ontario.

There is no one particular State which enjoys special advantages for beekeeping. Florida is probably one of the poorest of the States for commercial honey production. There are a few favored localities where commercial beekeeping can be successfully followed in Florida, but in general it is not a favored locality.

California is one of the best and there are numerous localities in California where beekeeping is very successful. However, in most parts of California it is necesary to practice migratory beekeeping to some extent and move the bees at least to one new field each year. Some beekeepers move two or three times. Unlike many eastern places, it is not generally the case that a man can find a location where he can get two or more good honeyflows in the same location in the same year.

There are limited parts of nearly every State that are specially adapted to honey production and other sections where it is not commercially profitable.

Texas, New York, Michigan, Colorado, Idaho and Montana are among the well-known honey-producing States. Kansas and Nebraska also offer some very good locations, with, at the same time, large areas not suited to beekeeping.

The government encourages beekeeping in the National forests and offers exclusive rights to the ranges at a nominal price of 10 cents per colony. There are some very favorable locations unoccupied in the National forests and one need have no fear of being crowded out of a good location, for he is protected absolutely by Uncle Sam.

Maple Honey Co.'s apiary at Antigo, Wisconsin. This is a pleasant spot to spend a summer

### A Wisconsin Apiary

Our illustration shows a very attractive apiary in the woods of Northern Wisconsin. The Maple Honey Company, of Antigo, Wis., has never had less than an average of 100 pounds per colony in that location. The yard is well protected by the hills on the north, east and west, and on the south a "sugar bush" of tall maple trees furnish both shade and nectar. The hills and surrounding fields are filled with dandelion and white clover, and basswood is abundant in the nearby forests. Raspberry yields abundantly for several weeks and the season is rounded out with flows from buckwheat and goldenrod in late autumn. Aster and fireweed added to the long list of honey plants insure that no season will bring failure.

During the past season 85 colonies in the yard shown averaged 187 pounds per colony. In the picture may be seen hives that are six stories high. These gave a surplus of more than 300 pounds each. This is one of the yards belonging to Cherf and Leykom.

## Summer Management

By H. D. Murry

In reading the beepapers one cannot fail to note the effect that locality has upon the necessary management of bees. This idea is brought out by a careful perusal of the very interesting article by Mr. G. C. Greiner, on pages 19 and 20 of the American Bee Journal of January. What most impressed my mind was his closing paragraph, in which he says:

"The secret of my heavy yields, expressed in a nutshell, is simply this: Brood-chambers should never be disturbed during a honey-flow. I never open a hive from the time spring management is completed until the following spring unless it is strictly necessary."

Now, if your valuable journal had no circulation in the south, I should not say a word. But we already have too many beekeepers in the southland who keep bees in some such way as that, and that is largely responsible for the low average production of surplus honey per colony in Dixie.

I do not know just how much manipulation is indicated by Mr. Greiner in his term "spring management," but too many readers are liable to interpret it to mean, **Put on supers in the spring and let 'em alone.**

The most successful beekeepers in the south find it necessary to perform many manipulations during the course of the season. We hardly ever, I might say, have a continuous honey-flow from spring to fall; but our season is cut up into several short flows. This may bring about swarming, either at the beginning or end of any one of these flows. This makes it necessary that we know, practically all the time, what is going on in each brood-chamber. In order to know this it is necessary to make examinations from time to time. About the only exception to this rule is in the case of introducing a queen of the current season's rearing. In that case, we think that colony is not apt to swarm during the first honey-flow after her introduction, and it is not necessary to examine that colony again, unless some abnormal conditions arise with it.

A colony may not be doing the work in the super that we think it should, and we may think it needs requeening with a better queen. It may be doing good work in the super, but is getting extraordinarily strong. It might develop the swarming fever, so we examine to find out and take steps to prevent, in case we find it building queen-cells. Also, we usually desire to make more or less increase during the season, and this calls for work in the brood-chambers. There are so many conditions to be met that the most progressive beekeepers in the south have generally settled down to some system of frequent examination and manipulation of the brood-chamber. This is made all the more necessary by the fact that all commercial beekeepers have a number of outapiaries. They must be so managed as to have a minimum of swarming, or the results at the end of the season will inevitably show a balance on the wrong side of the ledger.

Mr. Greiner doubtless finds his system of management satisfactory in his locality; but taking the country at large, I doubt if the same system will prove profitable in many locations. I think Dr. C. C. Miller bears the palm as the most successful comb-honey producer in the United States, and from reading his book, "Fifty Years Among the Bees," I get the idea that he does quite a bit of manipulating combs in brood-chambers during the honey-flow.

Mr. Greiner was not attempting to give us a complete outline of his management, or tell us exactly what he did to each and every colony; but taking the information as he has given it to us, it appears that the colony that gave him the best yield in 1918 was the one that he manipulated the most. He at least increased that colony a little more by the extra manipulation than might have been otherwise. Then, there is that swarm. If that had occurred at an outyard during his absence, he would most likely have lost that, together with the 55 pounds of surplus honey it put up. Such swarms would be frequent in the south, and we strive to prevent them by periodical examination of brood-chambers and whatever manipulation may be indicated by the examination.

Ladonia, Texas.

## A Simple Feeder

By C. B. Palmer

Take pulverized sugar and honey (1 pound of honey to 2 pounds of sugar), knead them into a stiff dough; work in all the sugar you can. When your wrists give out you will know when you have enough sugar in. Now make this dough into pies one-half inch thick, sprinkle a little of the sugar in the bottom of a common bucket, put in a layer of the dough, or one pie, and a little more sugar, and another pie until all are in. Now you are ready to feed. Get from your grocer a lot of empty cigar cans. He will be glad to have you take them out of the way. Remove the cover and press as much of the dough into the can as possible. They hold 3 pounds of the food. Open the hive and turn this can bottom side up over the bee-escape hole in your packing super; or, if cloth is directly on top of the frames, then cut a small hole in the cloth and put the can over this hole. Now place the packing material snugly around the can and the job is done, and you have fed and not disturbed the bees in the least. At any time you wish to know if more food is needed just tap on the can slightly and you can tell. I use old broken pieces of honey or sections that are unsaleable or are not fit for baits; mash them right into the sugar, comb and all. I leave these cans on until late, and have frequently found comb built in them. The heat penetrates into the food and it does not get cold or too moist, but just right all the time. If the can should become empty just remove and put another one on. The honey dissolves the sugar, with the aid of the heat.

Bradshaw, Nebr.

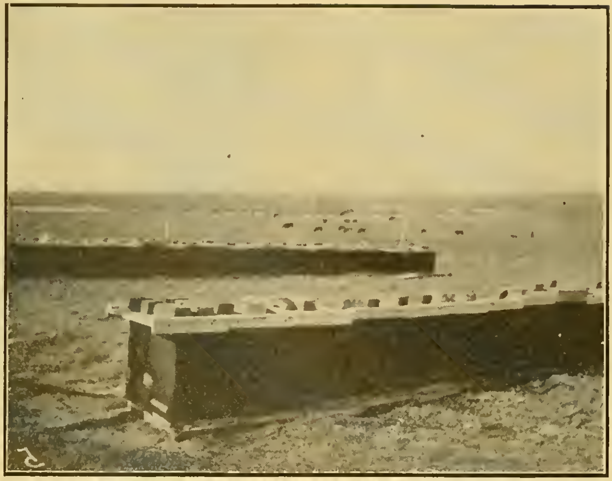
## Hermaphrodite Bees

By W. J. Sheppard

ONE of the beekeepers in this district has just been telling me of the unusual experience he had with one of his colonies in 1917. During that year, and again in 1918, large numbers of malformed bees were thrown out of one of his hives. On making an examination of these bees, as many as thirteen distinct and curious combinations were observed. Some of them had a worker eye on the left side of the head and a drone eye on the other, and some just the reverse. Others were perfectly formed drones as far as the petiole (the tube connecting the thorax with the abdomen), the abdomens from that point being in every way the same as workers, including the sting. Others again were just the reverse of this. These monstrosities all emerged from worker cells which were capped in such a peculiar manner that they could all be recognized before hatching out. There was apparently nothing radically amiss with the queen otherwise, as the colony built up rapidly in the spring. At this time five nuclei were made from the hive, and now comes the remarkable and strange part of the story. All these nuclei have repeated the same phenomena as the parent colony, similar types of malformed bees having been thrown out of every one. Here, therefore is direct evidence of a well-defined, although undesirable, trait or characteristic, in a queen being transmitted to her next succeeding generation. A theory advanced, when the occurrence was first observed in 1917, was that possibly the old queen might have been mated with a drone emanating from a laying worker.

Nelson, B. C.

## A Colorado Plan for Winter



Daniel Danielson's method of wintering in Colorado.

In Colorado and the mountain States where there is much sunshine during the winter months, the tendency is to winter the bees in the open without winter protection. With frequent flights the bees come through, though the colonies are often badly weakened.

Daniel Danielson, of Brush, Colo., writes us that he finds it desirable to give some additional protection for the winter months. He sums up the necessary conditions for successful wintering in his locality to be:

Strong colonies with plenty of stores.

Two-story hives with upper heavy with honey.

Sealed covers to prevent loss of heat.

Additional protection from winter winds.

He has practiced wrapping in tar papers for ten years past and is well pleased with results. The hives are moved close together in long rows, as shown in the picture. It should be noted that the hive entrances alternate, one facing one way and the next in the opposite direction, to prevent mixing of bees. The bees cluster near the bottom of the upper hive-body, thus getting away from the entrance and consequent drafts. The cost is small (he figures it at about 8 cents per colony), and the time required is short.

For the Colorado climate Mr. Danielson feels that this method of wintering is very satisfactory.

## Extracting at Central Plant

By Morley Pettit

WHEN I decided in favor of carrying an extracting outfit from yard to yard, it consisted of a hand-extractor, capping can, cold knives, strainer and barrels for containers. The honey was seldom taken home, but shipped from the nearest railway station. With such conditions the hauling home of supers and honey, when neither needed to go, would have been out of proportion to the moving of such a light extracting outfit, even if more rapid transportation than horse-power had been available.

The increase of labor-saving machinery, with the decrease of labor, increased the difficulty of moving and set me looking for a better way. The advent of the Ford truck turned the trick. Contributing factors have been the problem of extracting houses, our system of blending and clarifying by gravity, change of selling package and of method of selling, and a growing desire for more regular life than continued outapiary work permits.

To enlarge on points in the last paragraph, I always looked out for an unused dwelling in an orchard for an apiary site, thus securing an extracting house and shade for the hives. This combination can frequently be found, but not often enough in combination with other desirable features to suit extensive beekeeping. Our store-tanks hold 2,500 pounds each. We have a sufficient number to fill two a day and still let each stand for at least three days for blending and clarifying before filling into selling packages. The latter are 10-pound pails almost exclusively. It is obviously not desirable to leave honey in such accessible form in an outapiary building. Our present method of selling requires shipping in lots of a few hundred or thousand pounds from day to day, so shipments are all made from home.

Replying to Major Shallard (American Bee Journal, 1918, Page 370), I agree with him fully in his desire to sell honey with flavor and aroma unimpaired. Like him, I do not care for the idea of running the honey straight from the extractor to the selling packages. There is so much variation in the honey taken from different supers in the same apiary at the same time that we prefer to blend it in large quantities, as stated.

I believe Major Shallard's difficulty with capping melters is that he tries to render wax and honey from cappings at the same time. He is not alone in this, but I consider it cannot be done without too much flavoring of the honey. The melter should not liquefy the wax sufficiently to make it form a solid cake, much less flow from one spout of a separator while honey flows from the other. The second point is to get the honey away from the heated wax as quickly as possible, and the third point is to blend that honey with the extracted honey while it is hot. By itself it is undoubtedly changed in flavor. Blended it, if anything, improves the flavor of the whole.

In the matter of straining, I am with the Major, heart and soul. After much experimenting, I have no use for attempting to strain honey through any material which would be effective as it comes from the extractor.

Georgetown, Ontario.

Editor's Note—See Mr. Pettit's article "Apiary Buildings and Equipment," page 152, May 1918 issue of this journal.

Mr. and Mrs. C. D. Stuart, authors of the series of articles on "My Neighbor's Garden," published in this journal.

## The Wisdom of the Bee

By D. W. Macdonald

THE marvelous, if mysterious, wisdom which guides and governs the actions of a colony of bees is concentrated in the workers who, individually and collectively, control the destinies of the community. In their wise heads lies the government of this vast and complex republic. The queen, important and, indeed, indispensable as she is, has no share in the making or carrying out of the laws. Legislatively or administratively her voice is silent. The drone exists only for the continuance of the race, for the "propagation of his sweet kind." The brain of the one true female is atrophied in order that her ovaries may have full development. The brain of the male is made subservient to the special organs on which so much of the future welfare of the race depends. All the powers of guidance, government, management, combat, control, foresight, prudence and prescience are bound up in the tiny brain of the worker-bee. She, in fact, is the spirit of the hive. In our ignorance, we say that instinct guides her every action through the busy seasons of spring, summer, and perhaps autumn, and this teaches her to gather food, to store it up in the combs, to set out on a trek when she finds the population outgrowing the accommodation, to make provision for replacing a failing queen and to carry out the countless duties thrown on her. Something guides her actions when preparing against winter's cold and the period of semi-inaction. In no other way is the wisdom of the bee more markedly displayed than in the almost prophetic manner in which she stores the supplies of both heat-giving and flesh-forming food. The first is placed just where the bees of the cluster most require it during a long siege from cold, and the system of storing provides against its deterioration. Then the pollen is so placed that it does not come under the bees' observation readily until spring's approach demands its presence and its use as soon as active breeding starts. In preparations for winter and during that season of semi-repose the hive-bee manifests its wisdom in countless ways, and very rarely, indeed, does she ever fall into error or wrong-doing. During early winter she is content to live a life of semi-hibernation, well aware that the precincts of the domestic hearth is the only place for perfect contentment and unalloyed happiness. Each member of the community acts as if she lived not for her own selfish aims and objects, but for the well-being and safety of the commonwealth. "Each will for the good of the whole is bent." Each unit of the thousands, in a spirit of forethought and prescience, takes a part in keeping up the temperature to a living degree.

On this question of hive temperature depends successful wintering, and in controlling it the workers display marvelous anticipatory wisdom. As the cold increases, the bees in their oval ball gradually contract the bulk of the cluster, clinging more closely together; but they do not depend on this mutual attachment alone for keeping up warmth. Honey is a heat-producing food and the bees presciently have stored a reserve supply in their honey-sacs ready to be drawn upon when necessity calls for its use. As the cold strengthens they draw upon these stores, and, as it were, stoke their fires, thus ingeniously getting up and keeping up the heat of the winter cluster. Presciently again, they still further provide for contingencies. The individual bees are ever in a state of flux, and thus while the cluster remains intact the component parts are regularly alternating. Gradually but steadily those outside become the inside section and the outside crust becomes the central core. The matter does not even rest there, for these bees have been in contact with winter stores and they transport full honey-sacs to feed both themselves and their neighbors. Wonderful forethought! For thus the temperature of the hive is regulated at the will of this Amazonian host.

Study this cluster at a later period during the winter or early spring and our admiration of their fore-knowledge must be even more marked. After weeks, or it may be months, of close confinement when, owing to the heavy drain on it, food has become scant. Suddenly a mild day comes; the bees are privileged to have a cleansing flight, but they do not waste the shining hour in idle frolic or wanton dance outside. They daringly search the hitherto unworked combs of the hive, uncap the stored cells and transfer the life-giving nectar to the combs on which they re-arrange the cluster, ready now to stand another siege from cold. Their wisdom teaches them to re-store these brood-frames in anticipation of need. Here is forethought of a high order. Their foreknowledge teaches them that vastly increased stores will be consumed when active breeding sets in shortly.

Soon after the turn of the day the "Spirit of the Hive" whispers to the community that another season has begun to dawn, and the workers offer the Mother a wonderful concentrated food which some instinct has taught them to manufacture in their wonderful laboratory for the very purpose. That stimulation begets eggs in the ovaries of the mother-bee, and thus breeding begins in the center of the cluster where the temperature is highest. This, too, is wisdom, for there only can the egg, the larva and the pupa obtain care and that degree of heat which is necessary to evolve the future perfect imago.

If a breakdown occurs in a hive it is at once rectified by the bees. There is no leaving off until a future occasion with the bees, no putting off until the morrow. Whenever a crisis arises the wrong is righted.

Place bees into an empty hive, or insert an empty frame in an established stock and immediately wonderful wisdom is displayed by the workers. A section of them starts active operations, glut themselves with honey, set their laboratories to work and manufacture wax. Look at their "pockets" some time after, and you find eight wax plates, one in each, and every one evolved from a liquid inside and now transferred to the outside of their bodies. The romance of the hive lies in what they do with these plates of wax. The bee transfers each of these forward to the mouth, and there masticate them, make them pliable, cut them into shape, and in some marvelous way beyond our ken they are constructed into the hexagonal cell, thousands of which are required to complete a comb.

Two points may be given showing the wisdom of the bee connected with her stinging propensity. When the flesh is stung the bee generally does not try to pull out the apparatus directly, aware that it may at the same time lose some of its inner organs. It circles on its sting as a pivot, all the time slackening the hold of the barbs, so that in the end it withdraws the weapon freely. Again, even when in a fury, there is method in its madness. Provided as the sting is with palpi or feelers, these sensitive organs test the quality of the substance about to be attacked, and if impervious the feelers telegraph to the brain to say that an attack would be labor lost.

Banff, Scotland.

# BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

## Eight-Frame Hives for Winter

In this department, in spite of the waning fortunes of the eight-frame hive, a word has been said in its defense, when used by women, on account of its lightness and greater ease in handling. At the same time it was freely admitted as its greatest fault that the smallness of the hive made it more difficult to avoid starving in winter. Now comes no less an authority than Miss Iona Fowls, of the staff of Gleanings, and says there is not only more danger of bees starving in 10-frame hives than in 8-frame, but also more danger of their freezing.

In Gleanings, December, 1818, page 743, she says: "Although we prefer the 10-frame hive and could name several good reasons for this preference, wintering would not be among them. We believe there is not only more danger of the colony on 10-frames starving, but also more danger of their freezing. During very cold winters we have known medium colonies on 10-frames to starve with plenty of stores at the side of the hives, the bees having evidently been too cold to reach the honey. Had the hive space been smaller it would have been much easier to keep up the temperature, and less stores would have been needed. In the case of the 8-frame hive, or the 10-frame contracted to 8-frame, the colony may be left with the necessary clustering-space, and still have 35 or more pounds of honey. Good colonies, if suitably packed, will winter on even seven frames, which we have repeatedly proved with hundreds of colonies."

If now, Dr. Miller and others can be converted to Miss Fowls' views, the poor 8-frame hive may be allowed a respite before it is doomed to utter extinction.

(It is very apparent that Iona Fowls has never been a bee inspector with an opportunity to see how the average small beekeeper neglects them, else she would never say that **More** bees starve or freeze in 10-frame hives than in 8's. Her observation is very evidently confined to well-kept apiaries where an abundance of stores have been provided. The average small beekeeper never looks into the brood-nest, but is content simply to put on supers in spring and to remove them with contents in the fall. To find bees short of stores in 8-frame hives is so common as almost to seem the rule. In the larger hive there is more room in the brood-chamber and consequently the removal of the supers does not remove so large a portion of the stores. The writer has often known cases where farmers have lost nearly all their bees from this cause when with larger hives they would have left sufficient stores to carry the bees over. It is an unfortunate fact that we find the 8-frame hive most often in the hands of persons who are poorest equipped to use it. The 8-frame hive is an expert's hive and should never be used by one who is not prepared to give bees expert attention. In the hands of indifferent persons the larger the hive the better.

I feel safe in saying that 75 per cent of the annual loss of bees among the farmers of the northern states is from removing too much honey. Since 90 per cent of these people never look into the brood-nest, they depend upon the bees to provide for themselves in the lower story. Few people who have bees are beekeepers in the proper sense of the term. —F. C. P.)

---

In Gleanings for December, 1918, Editor Root is quite enthusiastic over the idea of big hives. No, he is not advocating 10-frame hives, but out-Dadants the Dadants by advocating, at least for fruit growers, 13-frame hives! His enthusiasm, which is more or less of the contagious kind, is evidently the result of a visit of two or three days with Adams & Myers, of Ransomville, N. Y., who, beside operating a 70-acre orchard, run 300 13-frame colonies of bees. And the strange thing in the case is that these 13-frame hives are said to be handier to lift than 8-frame hives!

Says Mr. Root: "I said to Mr. Myers, 'I do not see how you lift those great 13-frame hives.' 'They are a great deal handier,' he replied, 'in my opinion, than 8-frame hives of an equivalent capacity tiered away above my head. I can lift a heavy load along about the height of my chest or waist, when half of that load might be considerable of a strain if it were above my head.' I watched these men at work. It was evident that by their management they do not 'break their backs' any more than beekeepers with hives of 8 and 10-frame capacity. The secret of it is that the individual unit, while heavier, can be lifted to better advantage because it is never above the chest line."

It is plain that while the 13-frame hive is five-eighths heavier than the 8-frame hive, when you come to pile extracting supers on each, in order to have piles of the same capacity, the 8-frame pile must be five-eighths higher than the 13-frame pile. To be more definite, if 13-frame hives are piled 5 stories high it will make a pile of 65 frames, and if we put these into a pile of 8-frame hives it will be 8 stories high, with one frame left over. Now lift the top story off each pile. It is not hard to believe that it is easier to lift the one from the lower pile, even though it be five-eighths heavier than the one on the other pile, since the top one on the one pile is hardly more than breast high, while the other is almost out of reach.

With this view of the case, would it not be the part of wisdom for us women folks who want to avoid heavy lifting to adopt the 13-frame? But before deciding it may be well to look into the matter a little more fully. For other stories than the top stories are to be considered. Suppose we have lifted off two of the larger stories and three of the smaller ones, leaving the piles of nearly the same capacity. The advantage is now all on the side of the smaller hive. Decidedly so; for not only do the larger supers have a little disadvantage in height, but the disadvantage of being five-eighths heavier. So when the whole pile is lifted down, there doesn't seem to be much difference, does there?

Now if those of us who are using 8-frame hives have all of them piled 8 stories high every year, all season, in other words give every colony 56 extracting-combs, and no other consideration is involved, it might be worth while to consider changing to 13-frame hives. But in such apiaries is it not the general case that for every pile 8 stories high there are three to ten or more that are not more than 5 stories high?

Another thing to be considered: There are times when the hive containing the brood-combs is to be lifted from one stand to another. It may be, too, that it must be carried into the cellar and out again. In these cases the lifting is 62½ per cent harder with the large hives than with the small ones. So, taking all in all, if the larger hives are preferred, it will hardly be because they lessen labor.

At this point one may imagine a bright little woman arising to remark, "So far as I am concerned it is idle to discuss the matter. I simply haven't the strength to lift a 13-frame story, and I can lift an 8-frame one. If there is need to pile more than 5 stories high, I can extract enough to make room; or, I can use a step-ladder or a box."

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
**DR. C. C. MILLER, MARENGO, ILL.**
**He does NOT answer bee-keeping questions by mail.**

### Transferring—Restless Bees

1. I bought several hives of bees in old, worn-out hives. The bottoms are nailed and the frames so tight they cannot be taken out. I want to move them in new hives; can I do that by turning them upside down on top of new hives with full sheets of foundation when there is a good honey flow in June, and will the queen and bees go down into the new hive next fall?

2. My bees are in the cellar and all hives are quiet but one. This one is very restless and throws off a strong odor. It weighs 45 pounds, so surely has enough stores. They had a heavy run on buckwheat the last half of August, when it suddenly turned cool and wet. Can it be that the honey was not ripened enough, and soured? Would they behave that way if the queen died? But this would not account for the odor. I have put sugar candy on the bars, but it don't seem to help. SOUTH DAKOTA.

ANSWERS.—1. Yes, unless the season is a failure you may expect things to turn out about as you have anticipated. But if the bees are left entirely to themselves after the new hive is placed under the old one, you may find in the fall that the brood-nest is partly below. If the season should prove very good it may be that the two stories will not furnish room enough. So it will be well for you to examine occasionally, and as soon as you find the queen is laying in the new hive you should put a queen excluder between the two stories. In 4 or 5 days look to see if there are eggs below, and if not you must take away the excluder for 2 or 3 days, when you can return it if you find eggs below. In three weeks after you have succeeded in getting the queen shut off below, all the worker-brood above will have emerged, when you can extract the honey from above, or you can leave it till fall. Of course you will give more room for surplus if it is needed. (Would it not work better to place the new hive above, instead of below?.—Ed.)

2. You don't say what kind of odor. If very disagreeable, it may be foulbrood. If not, queenlessness may be the trouble. It is just possible that the trouble may be neither one of these, for it sometimes happens that one colony in the cellar may be especially uneasy when there appears no good reason for it, unless it be pure cussedness.

### Large Hives—White Clover

1. Which hive would you prefer, the 10-frame story and a half or a 13-frame hive all Hoffman hives except the half story, increase to be made by dividing, and all run for extracted honey?

2. Does a cross between golden and 3-banded Italian bees make them cross like crossing with black bees?

3 There was some white clover around here last season, but the bees didn't work on it much; do you suppose there was any seed in the blossoms enough to seed it for next year, 1919? We had some good rains in October and lots of rain in November. I never knew anyone to sow white clover seed; does it lay over from one season to another when it is real dry? IOWA.

ANSWERS.—1. I'd like to be accommodating enough to answer your question, but the fact is, I don't know. Maybe some one at Hamilton does.

(This will be treated separately.—Editor.)

2. I think not.

3. Most likely you will find a fair supply of seed has matured. Yes, the seed will lie over, if dry enough, till another year.

### Increase—Cover Picture

1. How would it be for increase in spring to give another brood-chamber and feed, if necessary, and just before the flow opens move to a new stand and place top chamber on old stand, seeing that there are eggs in the queenless colony?

2. Do bees breed in cellar in the early spring?

3. How much honey will my round tank hold, 5 ft. wide, 5 ft. deep, pounds or gallons.

4. Who are the lady and children on front cover of October number? ONTARIO.

ANSWERS.—1. It will do all right, but it will be a good while before a queen is reared.

2. Often.

3. About 734 gallons; 8,800 pounds of honey.

4: Mrs. Hillman and children, of Seattle, Wash. It's a very beautiful picture.

### Non-Swarming Hive

1. Is there not a demand for a non-swarming hive?

2. Could we not, by hive construction, accomplish a great deal to prevent swarming? MISSOURI.

ANSWERS.—1. Yes; at least there would be if such a hive were made.

2. I don't know. A good deal of effort has been made in that direction; yet it is a question with what success.

### The Sheppard Plan Again

The article beginning in the center column of page 412, December, 1918, issue of the American Bee Journal is of peculiar interest to me, and would like to have your opinion on one feature of it. It is stated therein that when there are two full-depth hive-bodies upon each other with an excluder between and the queen above with but little brood, the bees will make queen-cells below. The question is, what do you think of this as a probability?

Now, in center column, page 27, January, this year, "Mass." writes of thinking to do the same thing, except that instead of an excluder between the two hive-bodies, he speaks of a "3-inch double hole in center of cover over the lower hive," and as to that in view of the above first referred to, you revert him back to the original Demaree plan.

While I was putting up my comb supers with bait and starter sections for use this coming summer (they are now all ready) I had hastily taken off and temporarily put out of the way these supers from their hives, and on overhauling them found honey that I sold for $8. In one of these supers there was a lot of dead bees right in the cells; as one is apt to find or see in brood-frames, there was also honey in some of these cells; besides that there was much staining, suggestive of dysentery. My question is, would you mind putting sections and baits so derived on hives with colonies, or had I better destroy them? Of course there was nothing in the way of brood in these sections; just fully matured dead bees and quite a profusion of dysentery, spattering. I feel satisfied that the bees died after the supers were taken off. PENNSYLVANIA.

ANSWER.—If a common zinc excluder be used, it is likely cells will be started below. If the new wire-excluder be used, it is much less likely. Indeed, you would get that idea from Sheppard's article were it not for what I am sure is a printer's error. The types make him say, "when the new excluder was used the bees, as a rule, would build queen-cells." I am sure Mr. Sheppard meant they would *not* build queen-cells. So, if the wire excluder be used you must do as Mr. Sheppard suggests, put both an excluder and an extracting-super between the two stories with brood. You might also accomplish the same thing by putting a sheet under or over the excluder, the sheet being small enough so that a margin of an inch or more should be left on all sides for the bees to pass up and down.

If you will look again you will see that the plan of "Massachusetts" differs widely from that of Mr. Sheppard. In the one case the bees are entirely separated, no bees passing from one story to another; in the other case there is free passage for all workers, although not for the queen. In the one case half the brood is with the queen, leaving the probability of a swarm from that half, while in the other case the queen has only one brood. In the one case there is no killing of queen-cells, while in the other case all cells but one are killed in the queenless part. Don't you think the two plans are about a mile apart?

The fact that I "revert him back to the original Demaree plan" is nothing derogatory to the Sheppard plan. I am safe in referring to the older plan, because I know more about it and it has been more fully proven. I suspect the Sheppard plan is an improvement, but I don't know. It is possible that in the hands of others it may not prove so successful. And in giving advice to one with so raw a plan as that of "Massachusetts" it is better for me to play safe and advise plans well proven.

It is not advisable to use the sections containing honey nor the dysentery-bespattered ones. Those merely containing dead bees may be used, and it is possible you may help the bees to clean them out if the dead bees are thoroughly dried. Shake out what bees you can by pounding the sections flat on a table.

### Brood-Combs Above Sections

In American Bee Journal, 1918, page 276, "Swarm Prevention, as managed by Fowls," may work very well for extracted honey, but how for comb?

Don't you think the bees would use some wax from upper brood-combs to cap sections? MISSOURI.

ANSWER.—Yes, my experience has been that when brood-combs were above sections the bees would cap the sections with more or less dark comb, no doubt brought down from above. The sections will also be darkened if brood-combs are close beside them. The bees will even carry up some dark comb from below to work into the cappings of sections if the sections are close down to the brood-combs; so it is worth while, when working for section honey, to have thick top-bars in brood-frames, if for no other reason than to keep the sections white.

### Sheppard's Plan Discussed

1. Referring to W. J. Sheppard's article, page 412 of December, on experiments with variation of Demaree plan when by two or three frames of brood with the queen are placed in another brood-body over the colony with an excluder between, leaving its bees to build cells in the brood-body and rear a young queen, wouldn't it be well to give them a ripe cell at the time of changing the queen?

2. How would it work to place the queen and all the brood but two frames above, leaving two frames of sealed brood and a ripe cell from a choice queen in the body below, placing another body with empty combs or frames of foundation, between the body con-

taining the queen and the one with the queen-cell (instead of the excluder)?

3. Would the cell hatch and the young queen be laying eggs before the two queens got together?

4. Wouldn't the young one be apt to overcome the old one when they did meet?

5. Will bees smother in the winter if the entrance becomes clogged with snow and ice when they have a deep super on top packed with forest leaves, but no ventilation?
ILLINOIS.

Answers.— 1. It might be well, and it might not. With young brood of all ages below, the bees might start other cells, and then swarm as soon as the young queen was ready to go. It would be entirely feasible for you, instead of killing all cells but one to kill *all* cells, and then give a cell of best stock.

2. That would be merely taking away from the story with the queen two frames of brood, and generally that would not stop swarming.

3. I should expect the virgin to go up into the story containing the queen before it was time for her wedding flight.

4. Considering that the old queen is cumbered with eggs and the virgin more agile. one might expect the younger to come off first best, but experience has shown that when the laying queen is satisfactory she will continue in power, either because she gets the better of the virgin, or because the workers take a hand in the matter. If the queen be such that the bees desire to supersede her, the case may be different.

5. If, as you say, there is *no* ventilation above, then the bees should smother when snow and ice close the entrance. If the packing above is sufficiently open to admit enough air, then there should be no smothering.

### Shed for Bees

I have built a shed in which I expect to keep all of my bees. I have built it 24 feet long, 8 feet wide and ' feet high. I can put about 13 hives in a row and I can make 3 rows, which is about the width of my shed. I would like to know whether it would be all right to put the hives in front of each other; if so, would there be any danger of the bees from the last row flying into the hives of those in the first row. I have made doors by which I can close the front of my shed when the snow comes. Do you think my plans are all right? ILLINOIS.

Answer.—It is hard to be sure about anything with bees until it is tried, but I'm afraid your plan will not be very satisfactory. With the three rows in the shed the bees inside would not have a very good chance for light and heat from the sun when a flying day comes, and there would likely also be some mixing of the bees of different hives.

### How Large an Apiary?

1. I have 80 colonies in my home apiary and have bought 70 stands more. I intend to hold my final number to 200, and have within a radius of two miles each way about 800 acres of alfalfa and some sweet clover. Do you think I could secure the maximum amount of honey by having these bees all in one apiary? (centrally located.)

2. How wide do you make the slats on your rack under bees? NEW MEXICO.

Answer..—1. I confess ignorance in such a case, but would guess yes.

2. About half an inch; but it might vary.

### Foulbrood—Requeening

1. My bees had foulbrood last summer and I caged the queens in the hives that were the worst (The ones I did not cage only had a little foulbrood.) I sent and got a dozen Italian queens and requeened only about one-half of what colonies I have, last September. How is the best way for me to requeen the rest of my colonies next spring from the pure Italians I have?

2. I have a queen coming to me; what is the earliest time I could have her come next spring, from Alabama? IOWA.

Answer.—1. You cannot do it next spring very well, for you can hardly rear queens successfully in Iowa before about June. One way will be to let the colony go to near the close of the harvest with its old queen, then make it queenless, kill all queen-cells a week later, and give it a sealed cell of your best stock. That would not materially interfere with the harvest.

2. So far as your end of the line is concerned, it ought to be safe to receive the queen any time in May, and possibly in April, provided a queen is ready to be sent at that time.

### How Far Can the Bee See—Observations, Etc.

1. How far do you suppose a bee can see an object—tree, water course or a house—when coming in from a distance of a mile or two loaded?

2. If I should look into brood-chamber now would I find any eggs at all or any young bees in cells?

3. When does the queen quit laying?

4. I've made an observation hive (1-frame) and aim to take out a frame from one of my colonies at the proper time and put in my observation hive and let the bees raise a queen. Later on, can I take that frame out. brush off all bees and put a frame of full sheet foundation in observation hive for bees and queen to work on and put the frame of young bees in another colony? Would that cause trouble in the colony? I am a novice.

5. At the proper time next spring I aim to buy a queen and 3 pounds of bees to put in a 10-frame hive full sheet comb. When they arrive will bees and queen all be together, or will queen be in a cage?

6. How had I better proceed to get them in the 10-frame hive?

7. Will 3 pounds of bees put in 10-frame hive early build up a full hive by next fall, or had I better buy 4 pounds?

8. I suppose I had better buy here in Texas or Louisiana, so I can get bees in a few days. How long can bees be in transit and do well?

9. About what time should I get my queen and bees I am to buy?

10. How far north do bees live?

11. My observation hive will be in my south colony, in the shade. Will a dark cloth or brown paper over it be sufficient to keep out the light?

12. I have 4 8-frame hives native bees and will buy one Italian queen and a few pounds Italian bees. The queen I buy will continue to raise Italian queens and bees, but will her daughters stand 4 chances to 1 to be impregnated by my native drones, and vice versa?

13. If I don't exhaust your patience I will write again later on—maybe. TEXAS.

Answers.—1. I don't know; but I have an idea it can see as far as a man, or further; so it might see a house or a big tree two miles away.

2. You would probably find neither eggs nor brood.

3. As far north as I live the queen stops laying in September or October, and maybe in November. I don't know, but I should think it might be a month later in Texas.

4. You propose to brush off all bees and put the frame of young bees in another colony; by which I suppose you mean the young bees yet in their cells. No trouble would come from putting these in any colony.

5. Like enough the queen will be caged. Depends on breeder from whom you buy.

6. One way is to put a brood-comb from another colony in the hive, set the package in the hive beside it with opening close to the comb; cover up and let the bees take their time to occupy the comb or combs in the hive. Possibly instructions may come with the package.

7. In a good season they should not only build up, but yield surplus.

8. They might stand a week; but of course the shorter the confinement the better.

9. As early as the seller is ready to send them.

10 I don't know, but have an impression that I have read of their being about as far north as human habitations are found.

11. Dark cloth or paper will probably be sufficient.

12. You can increase the chances of pure mating by keeping all drone-brood out of dark colonies, but your neighbors' bees are to be reckoned with. It may take several years to work out all black stock.

13. I have a good stock of patience on hand, so don't be afraid to come again. But it would help a whole lot if all would take pains to write very plainly. A good way is to try the questions on someone else before sending. If they can read them, I ought to be able to make them out.

### Drones in Winter

The bees were flying this 11th of January and one of my hives has drones in it. Now I have been told that if the bees have drones in the hive in the winter that they are queenless. What I wish to know is what is best to do with that stand of bees. They are a very strong swarm. INDIANA.

Answer.—Nothing can be done until bees are flying in April or May. Then see if there is any worker-brood, for there is a bare possibility that they are all right in spite of a few drones. If you find no worker-brood, you can unite it with a weak colony that has a good queen, or you can give it a queen that you will have sent by mail.

### Swarm Control

1. I run my bees for extracted honey and cannot be with them every day. How can I get the greatest possible amount of honey per colony without any increase and still make sure of having no swarms? Would it be best to shake them at the proper time, giving all but one brood to another hive, or would the colony store more surplus by leaving brood and putting queen below an excluder? If the latter course was followed wouldn't there still be danger of my losing some swarms?

The honeyflow here is from white clover, only lasting from June 15 to July 15 or 20, with no fall flow.

2. If a colony be shaken after it has capped queen-cells and left with one brood and no queen-cells, would they still want to swarm. or would they do good super work?
ILLINOIS.

Answers.—1. You can hardly do any better than what you propose, and you will likely get more surplus from the colony by leaving the brood and putting queen below excluder. Of course, you must kill cells if there be any at time of putting brood above excluder. and also about 8 or 10 days later.

2. In such a case you would be quite safe in counting upon excellent super work, with no thought of swarming.

### Bees Smothered

1. I have several hives in which the bees were smothered out the winter of 1917-18, full of comb and candied honey; also full of moths and their webs. Would like to ask through the Journal what to do with them.

2. I would like to requeen; which would you advise, the golden or 3-banded Italians?

3. Would it not be best to get northern-raised queen. I see they raise more of them in the southern states. IDAHO.

Answers.—1. As the moths have had a pretty good chance at them, there is likely nothing better you can do than to melt up the whole business, saving the wax and either feeding the honey or making it into vinegar. If any of the combs, however, are not in too bad condition, you can put them in the upper story of a strong colony to be cleaned up, or you might give them to a colony that is building up.

2. Some prefer goldens, but probably more beekeepers like the 3-banded better. Our own preference is for 3-banded Italian stock.

3. The southern raised queens apparently give as good satisfaction as northern raised ones.

### Increase—Yellow Jackets

1. I am away from home and have to do all of my work on Sundays. I have 4 swarms of bees and 11 10-frame hives and 45 frames of extracting combs. I lose all of the young

swarms and I wish to divide them. I have plenty of medium brood. I can't send for queens, as I would not be home to care for them. I wish increase, honey is secondary. The main honeyflow commences July 1. Now, with the equipment that I have, please give me the best way for increase.

2. Yellow jackets trouble my bees very much, commencing in mid-summer and keeping it up until late fall. The bees apparently can't handle them. I have the golden Italian. The yellow jackets robbed my neighbors' bees and killed 7 swarms. I wish to learn some way to help the bees to handle them

WASHINGTON.

Answers.—1. It is hard to advise without knowing something about your experience and ability. If you have not done so, the first thing is to get a good text-book on beekeeping, such as Dadant's Langstroth, and study up the whole subject of beekeeping. Then, if you want some work that gives additional information about artificial increase, I know of nothing fuller than my book, "Fifty Years Among the Bees." I might suggest one way that may suit you: Put into an upper story all brood but one, leaving in the lower story the one brood and queen, filling vacancies with empty combs or frames with full sheets of foundation. Put an excluder over the lower story, an extracting-super over that, and then the story of brood. A week later you should find sealed cells above, when you can divide the brood into two, three or more parts and start that many new colonies, of course having at least one good queen-cell in each one.

2. I'm afraid I can't help you much. But you can keep your colonies strong, and destroy all yellow jackets' nests you can find.

### Disinfecting—Goldens—Moving

1. Will painting the inside of a hive with gasoline disinfect it from American foulbrood?

2. Can one with ordinary skill and intelligence in apiculture successfully combat American foulbrood?

3. Which is the best, golden Italians or the leather-colored; or is there any difference?

4. Will moving bees as late as December 15 cause the queens to start egg-laying?

CALIFORNIA.

Answers.—1. No; but good authorities believe it unnecessary to disinfect anything but the combs, and the only thing to do with them is to melt them up.

2. Yes. If you are uncertain about the case send sample to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C., and he will tell you what the disease is, and give instructions for treatment, with no cost to you.

3. Probably the majority prefer the leather-colored.

4. Probably not; but if it should it would likely continue only a few days.

(I recently visited a California apiary moved about that date and found nearly all queens were laying.—F. C. P.)

## MISCELLANEOUS NEWS ITEMS

### Carbon Disulfide Will Not Kill Eggs

I notice on page 27 that Dr. Miller says: "If you fumigate with carbon disulfide no second fumigation will be needed, as eggs and all will be killed."

Texas Bulletin No. 158, which I think is an authority on bee moths, page 29, says: "In **all the experiments,** the eggs of the bee moth were **uninjured** by the fumes of carbon disulfide."

One-fourth ounce per cubic foot, or an ounce for three standard large supers (10-frame) for 12 hours was recommended for worms. The moths were killed in 20 minutes. Every beekeeper ought to have Texas Bulletin No. 158 (June, 1913).

The eggs hatch in from 10 to 12 days, when a second fumigation will be necessary.

C. E. FOWLER,
Hammonton, N. J.

### Raw Sugar for Feed

This has been a very favorable winter in this Southern Ontario district for outside wintering of bees. My bees had a splendid flight as late as the 18th of December, and up to that time the weather was warm enough every few days for them to come out—and the bees took full advantage of the opportunity.

Acting upon the suggestion of the Department of Apiculture at Guelph, I fed six colonies with syrup made from raw sugar crystals. The syrup was very dark in color and most unappetizing to look upon, and I fed it with misgivings; but being unable to get the requisite quantity of granulated, I used that sugar instead of frames of honey. I have noticed one peculiar thing about the bees in those six colonies—they appeared to be much livelier than any others of the forty-five colonies in my apiary. At the first sign of higher temperature those bees were out and flying, while the others would remain inside. If it happened to be very warm (and we had quite a number of unusually warm days in the fore part of December) the bees fed upon the raw sugar syrup were very lively, indeed, so much so that it was quite noticeable. As most of the bee literature relating to fall feeding states particularly "be sure and use nothing" but the best of granulated sugar," I shall be greatly interested in the fate of those six colonies.

E. V. TILLSON,
Ontario.

(There is little doubt that the activity of the bees fed this syrup was caused because they were uncomfortable. Whenever an inferior grade of honey is stored for winter, the bees are always more or less active, even in cold weather, if confined for long. If the bees do not have frequent flights they suffer seriously.—Ed.)

### About Goldens

A California reader wants a discussion of the Goldens. He says that if there is a strain of goldens as good as the leather-colored Italians he wants them, for they are beautiful.

There is an old saying "Handsome is that handsome does," which applies to bees as well as other things. We cannot afford to sacrifice production for beauty, but if the Goldens will hold their own with the others when it comes to counting up the returns after the crop is sold, then beauty is an added attraction. We invite letters from our readers who have given them an extensive trial.

### Chenango County Beekeepers Meet

On December 14 the Chenango County Beekeepers' Society held its first annual meeting in the County Court House at Norwich. The meeting was well attended by a large number of enthusiastic beekeepers from Chenango and adjacent counties in New York State.

The meeting was called to order promptly by appropriate remarks by the Chairman, T. R. Gorton. The program committee had prepared a very interesting and instructive program consisting of addresses by prominent beekeepers. The addresses by George H. Rea, of the Department of Agriculture, Washington, D. C., on "Organization and Its Benefits to Beekeepers," and "Modern Beekeeping, the Cycle of the Year Including Wintering," were presented in Mr. Rea's easy, free manner.

Charles Stewart, of Johnstown, N. Y., gave an address on "Foulbrood and Its Control," which was very timely, as European foulbrood is causing heavy losses in the County. He dwelt on the importance of young Italians of a good resistant strain in the control of European foulbrood and securing a maximum crop of honey.

The address by E. P. Smith, "Observations in Reference to Beekeeping in the County," brought out the fact that only a small proportion of the available nectar from the flowers was gathered.

With the discussions of the addresses brought out and the question box, it was a very busy day.

The society decided to have an exhibit at the County Fair and to hold a field day during the summer. They also affiliated with the State Association and the Farm Bureau.

The officers for the coming year are O. W. Bedell, Earlville, President; C. G. Brown, South Otselio, Vice President; T. R. Gorton, Norwich, Secretary and Treasurer.

### Remedy for Propolis Skin Poisoning

Mr. O. A. Hostetter, of Yreka, Cal., sends us the following remedy, which he takes from the "Scientific American Cyclopedia of Receipts," and which he says is good both for the skin itching from propolis and for poisonous ivy:

"Dust aristol on the parts affected. Do not apply with the fingers, as it would at once melt. It gives instant relief and one-quarter ounce cures any case of skin poison."

Aristol is thymol iodide, and is recommended for skin affections. Its properties are similar to those of iodoform. It is also used in an ointment. It is very high in price now, $2 per ounce, but it certainly would take less than a quarter ounce to procure relief.

### Arkansas to the Front

Arkansas has been overlooked in the matter of beekeeping up to the present time, but the people are awakening up to the realization of the fact that we have an ideal bee country. We have very few wide-awake beekeepers. Most of the beekeepers are of the old type, "Gums" and "Swarms" and "Robbing the Bees," and can remember the time when "Grandpa cut down a tree and got two or three tubs full of honey," etc. But we have some men who are right up to the minute, and the climate is ideal.

On January 3 a meeting of the beekeepers was called at Fort Smith by Mr. J. V. Ormond, Special Field Agent, Bureau of Entomology, and Mr. C. M. Tuggle, County Farm Demonstrator of Sebastian County. We were all surprised at the attendance, as the weather was bad and the call was short, but we perfected an organization with the following officers: Mr. H. P. Gunnaway, President; J. L. Kelly, Vice President; C. J. Cline, Secretary-Treasurer. There were present many visitors from the adjoining counties and all present were very enthusiastic and went away with the determination to get their county organized as soon as possible.

We hope to help organize Crawford County early in February, and Franklin County later.

This immediate community gathered a fair crop of honey, considering the condition the bees wintered over, as few beekeepers pack their bees in winter.

J. W. PRICE,
Fort Smith, Ark.

### Yellow Sweet Clover

It seems to me that the honey made from the second crop of yellow sweet clover is best. We usually cut it for hay after it has been three weeks in bloom. In one weeks' time the ground is again covered with a yellow carpet. It blooms from the ground up and continues until the frost kills it. If one can't see the bees on that bloom he can hear them, and if barefooted he can feel them. There are undoubtedly plants which furnish more honey for a few days, but for a long period there is nothing like it.

J. D. KAUFMAN,
Kalispel, Mont.

### Hamlin Miller Passes On

Hamlin B. Miller, of Marshalltown, Ia., for several years secretary of the Iowa Beekeepers' Association and vice president of the National, is dead. Mr. Miller was an enthusiastic beekeeper and will be missed at the Iowa conventions. He was present at the first convention, when the association was organized, and has never missed one since. With the exception of possibly one year he has held office in the organization since the beginning. He was a member of the first board of directors, later secretary for several years and vice president at the time of his death. Beekeeping was a side line with Mr. Miller, to which he devoted himself largely on account of his health. His friends have known that he was afflicted with diabetes for several years, but few were prepared for the announcement of his death. Mr. Miller was still in the prime of life, being only 57 years old at the time of his death.

### Paste for Labels on Tin

In the February number is an enquiry for a paste that will stick labels on tin. This recipe I have had this past summer and have found it to be a success, provided that it is used liberally, not wastefully:

Dissolve in a little cold water (soft preferred) 2 heaping teaspoonfuls of corn starch, in another vessel dissolve three-fourths of a teaspoonful of Lewis lye in nearly ½ pint of water and pour into the corn starch. It is now ready for use. For larger quantities use the same proportion. I was like "Michigan," could not get labels to stick, till I ran across this recipe; have had no further trouble since; gave it to two of my friends and they have had no trouble, so will give it to the general public.

FRED TYLER,
San Jose, Ill.

### Honey From Corn

I see you ask about bees working on corn, or Indian maize. Many years ago, after my bees had secured the early crop, I knew they had been at work on corn. I extracted the honey and found it what I thought rather poor quality. I know they secured this from the corn tassel, as I saw them at work on it in great numbers. I secured four 5-gallon cans of this honey and set it aside, thinking I could use it to feed back to the bees in the spring. Along in the winter I tasted it and found it very fair honey, and then sold it out and had no complaint from it. It was of a light amber color and had a very good flavor after it had set awhile.

I also once secured some smartweed honey, and when first taken it had the smartweed taste, that is, it would bite like the taste of smartweed. I set it aside for awhile, when it got to be of a very good taste, and one, after trying it, came back and bought a 5-gallon can of it; I have never secured either of the above mentioned honeys pure since, but it would be mixed with other sources. In the cases mentioned I secured it pure, as stated.

J. W. ROUSE, Mexico, Mo.

### The Metal Honeycomb

Last spring I secured ten aluminum honeycombs and gave them a good trial, both in the brood-chamber and as extracting-combs. I have written of the frailty of the cells, and found that I was not mistaken, for in uncapping, the dragging of wax particles over the edges of the cells bent the metal, while a bit of hard propolis damaged twenty or more cell edges.

This will, I believe, spoil them for use in the brood-chamber; but there is another feature which does not look good to me, and that is that it seems to be impossible to remove the old larval skins from the cells. I washed a frame in boiling water and dried it, and found that the skins were not removed, and I think that it would not be long before the frames would have to be replaced, the same as with wax combs.

I am not at all prejudiced against the metal comb; on the contrary, it looked good to me, and I may draw wrong conclusions; but I write that others may save work and study, or, if they wish, repeat my experiments.

A. F. BONNEY,
Buck Grove, Ia.

### Mild Winter

We are having very mild weather here; most too mild, I fear, for so early. Bees have been flying and carrying some water for several days and I fear a cold spell coming now would cause considerable loss.

C. E. SHELDON,
Coeur d' Alene, Idaho.

### Early Spring in Texas

On January 28, at noon hour, the sun shines warm. It is amusing to see my bees chasing house flies and green or bottle flies, away from the entrance. I wonder what these flies are trying so hard to get into the hive for. Quite a number of bees are carrying in pollen. Where can they get pollen at this season? I was surprised to see so many bees carrying in beebread.

M. S. PARRISH,
Milan, Texas.

### A Good Location

Eleven thousand six hundred dollars from less than 600 colonies of bees is not so bad for a young man only 64 years old. I purchased 600 new hives, power extracting outfit and Peterson capping melter. The capping melter is too slow, and I set it aside the second day.

My automobile comes handy to pull loads of honey away from the beeyard before hitching on the mule team or pulling loads of bees in or out of the apiary, where there are 600 colonies of bees flying. I keep mine all together in one yard, in a mesquite location, and a thousand seem to do as well as a hundred would do.

J. M. HERMAN,
Chandler, Ariz.

### Monroe County, New York, Organized

The beekeepers of Monroe County, New York, organized an association at Rochester on February 1, with 41 members. F. M. Pillsbury is the secretary.

### It Pays to Advertise

In the People's Home Journal for December, 1918, is a paragraph in a story written by Anna Brownell Dunaway, which reads as follows:

"'Honey,' offered Hiram, shortly.

"'Oh, yes,' laughed Mr. Posey, 'that's it—honey. Eat Bonney Honey. Alfred Bonney, King Bee,' is the way the advertisement reads. But being as he's retired, I suppose he's what you might call a drone now.'"

The above quotation indicates that

Bonney's advertising has been read and now is being passed on. Now is the time for other beemen to be thinking about advertising before the bottom drops out of the price of honey.

### Nectar From Corn

Last fall, while passing through a field near my apiary, the owner jokingly called to me that my bees were "eating his corn."

This corn had been planted too late and did not get ripe. The leaves had turned yellow, but the stalks and ears were more or less green and full of juice. The owner was gathering a small quantity for his hogs, and I found from two to five or six bees sucking the sweetish juice from the end of the cobs, where these had been broken from the stalks.

Would it not seem probable, therefore, that the bees could also gather this juice through the medium of aphids on the stalk or leaves, whether they secure honey from this plant in another manner or not?

A. G. VAN RONZELEN,
St. Louis, Mo.

### Honey From Corn

One summer my bees were starving: no flowers or nectar anywhere. One morning the bees went roaring as though they were swarming. As they all went east, I followed to see what caused the excitement. As I climbed over the fence into the cornfield the bees were just roaring all over it like they do in basswood trees in bloom. I went over the field and watched them for a long time. They were working on the tassel and not on the silk. They were not gathering any pollen nor carrying any in the hives. All the honey I got that season was from the cornfields. I got about 20 pounds per colony for the season, and that was the only time I ever got pure corn honey. It was of the constituency and color of basswood, but was of a peculiar flavor. Nothing else was mixed with it.

Since then I have seen them gathering nectar a few times, but only spasmodically, and not amounting to anything.

They also gather pollen from corn every season. I never saw them working on the silks.

The corn tassels do not secrete nectar every year. The weather conditions must be just right for the bees to get anything at all.

Now as to aphides: I have seen thousands of them: but my honey was not aphide secretion, but the pure nectar, with a flavor not forgotten if once learned.

SYLVESTER KALER,
Arkansas City, Ark.

### Another Pioneer Beekeeper Gone

M. M. Baldridge, the oldest subscriber of the American Bee Journal, died at his home at St. Charles, Ill., January 31. He was a reader of the Journal since its first issue. Mr. Baldridge was 81 years old. His face was a familiar figure at the Chicago bee conventions.

### Montana Beekeepers to Meet

As we go to press we get the announcement of an interesting program of the Montana beekeepers, who will meet at Billings on March 11 and 12. The meeting will be held in the Parmly Billings Public Library.

### Ashes on the Snow

For several years we have been overcoming the snow handicap by spreading fine dry ashes over the snow at the first indication that it will be warm enough to begin melting the snow, and also considering the bees will have a flight.

If the bees should come out before the snow is melted very much the ashes darken the snow, taking the glare off, thereby eliminating snow-blindness among the bees and loss of bees from alighting in the snow in front of the hives.

We sack up our ashes in the fall when they are dry and find that three or four sacks, if dry, are sufficient for a yard of 100 to 150 colonies.

We begin spreading the ashes on the windward side of the yard and find that it spreads best by a throwing motion, using considerable force.

R. L. PENNELL,
Ignacio, Colo.

### Confining Queens During Honeyflow

I am going to put a question up to you which is causing me a good deal of worry in anticipation.

You know that here in Minnesota our honeyflow is from white clover and basswood, which comes practically in one continuous rush. Now, when this rush is over, there is nothing more doing, as far as surplus honey is concerned, so it behooves us to conserve this flow in every way possible.

One way is to confine or remove the queen at the beginning of the honeyflow while the bees are raising a young queen. This not only prevents the use of this flow for brood-feeding, but also prevents the production of such a swarm of useless bees after the season is over.

Again. I wish to put the brood in such relation to the hive that I shall not be obliged to look into any division but the top for queen-cells when, in ten days, they must be disposed of.

After the change is made the hive will be arranged: first division (the main hive) with empty drawn combs; second division, empty drawn combs; third division, all of the brood except as specified in question three.

Now for the questions:

DR. L. D. LEONARD.

First. Will the bees work just as well in the two divisions below the brood if the queen is removed from the hive at the time the brood is put above?

Answer. I believe they will, for they will not be hopelessly queenless.

Second. Will the bees work better if the queen is confined in a small cage just inside the entrance, no brood being present below the top division?

Answer. I do not think it will make much, if any difference from No. 1.

Third. Will a blanket made of queen-excluding zinc holding two frames of brood placed in the first division (hivebody) wherein the queen may be confined, be enough better than either one or the other alternatives to warrant the expense in making?

Answer. It may, but I hardly think so. Try 3 or 4.

Fourth. If in ten days I remove queen and place a frame of brood with a queen-cell from the top division to the bottom, destroying or removing all other cells in the hive, will the bees be likely to swarm when the young queen is hatched and goes out on her mating flight?

Answer. This depends entirely upon the crop conditions. If they are good, I believe the bees may swarm.

These questions we do not have to answer in our localities of spring and summer flows. So the replies can only be tentative.

Why not confine the queens in a cage for only 8 or 9 days; then open the hive, release her and destroy the queen-cells, if she does not do it herself? I can see no objection to so short a confinement. But in a period of 8 days, if the crop is good and the bees bringing plenty of honey, most of the breeding cells that are emptied of their brood by the hatching of young bees, will have been filled with honey. With the 8 days or 9 days of non-laying and the shortening of the brood space thereby caused, the production of brood might be delayed sufficiently to secure the result wanted, a less number of bees to feed during late summer. We must make sure that the colony is not sufficiently weakened or endanger its chances to winter safely. A week or more of delay would, in my mind, be quite sufficient.

Great foresight must be exercised not to remove the queen too soon, as some of the force needed would be lost. Of course, if the queen is old or of poor value, it is best to remove her entirely. Let us hear the experience of others.—C. P. D.

### Value of Good Stock

Mr. E. G. Carr, State Apiarist of New Jersey, tells of a beekeeper who four years ago was on the point of giving up beekeeping because of European foulbrood. He was induced to try selected Italian stock, with the result that this year he produced 400 pounds of extracted honey from one colony, and it was not regarded as a favorable season, either. The presence of European foulbrood often stimulates beekeepers to give more careful attention to their bees than ever before. Its presence makes the introduction of good stock imperative. Many good beekeepers date their success from the time when they began to fight this disease, so perhaps, on the whole, the benefit derived from overcoming it has more than balanced the injury it has caused to the industry. It has served to call attention to value of the best stock in a striking manner.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

### BEES AND QUEENS

QUEENS—Bees by the pound, 3-banded and golden. They are hustlers, gentle to handle, cap their honey white, are very resistant to European foulbrood. Booking orders now one-fourth down, balance at shipping time. See January "ad" for prices on bees by the pound. Quote nuclei f. o. b. here, 2-frame nuclei, $4.50; 3-frame nuclei, $6; 1-frame nuclei with 1 lb. extra bees, $4.50; 1-frame nuclei with 2 lbs. extra bees, $6; 2-frame nuclei with 1 lb. extra bees, $6. No discount on nuclei. Select untested queens, $1.50 each; 25 or more, $1.35 each. Tested queens, $2.50. Select tested, $3. Free circular giving details.
Nueces County Apiaries, Calallen Texas.
E. B. Ault, Prop.

FOR SALE—Goldens and 3-bands, as good as the best. I have a limited number of tested queens for early shipping at $2 each. Untested, [illegible] May 1, $1 each. Safe delivery guaranteed if not more than 5 days in transit. No bees for sale.
H. P. Gannaway,
R. 1, Box 208, Fort Smith, Ark.

FOR SALE—For spring delivery—Colonies of Italian bees fine strain, with tested queen, in 1-story 8-frame single-wall hives, full depth, self-spaced, Hoffman frames, nearly all wired, $10 each. A few colonies in 10-frame hives, $11 each; all free from disease; f. o. b. here.
Wilmer Clarke, Earlville, Mad. Co., N. Y.

FOR SALE—Mott's Northern Bred Italian queens, untested, $1 each; 6, $5.50; 12, $10. List free. Plans "How to Introduce Queens, and Increase" 25c. Also Golden Campine eggs; best laying bird out.
E. E Mott, Glenwood, Mich.

BEES AND QUEENS—Bees in pound packages and queens from the south will be in greater demand this year than ever before. This season spells opportunity for every beekeeper. Book your orders early. Geo. W. Brown,
Lynnhurst Apiary, Wilson, Wis.

BEES AND QUEENS WANTED—In order to meet the demand of my northern trade for early bees, I am anxious to get at once in touch with some southern beekeeper who can supply me with bees in 1, 2 and 3-pound packages, and queens in lots [illegible] one dozen or more at wholesale prices. Bees to be shipped direct from southern yard to customer. Would prefer some one having had experience in shipping bees into Canada. Communicate at once to Geo. W. Brown,
Lynnhurst Apiary, Wilson, Wis.

Colonies of bees, Italian queen, $8 each.
S. Collyer, Black Mountain, N. C.

FOR SALE—30 stands bees.
F. J. Rettig, Wabash, Ind.

THREE-BANDED ITALIANS ONLY — Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. H. G. Dunn,
The Willows, San Jose, Calif.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. Garden City Apiaries,
San Jose, Calif.

Remember the date, March 10 to March 15, inclusive, and let the fifty cents come along to *The Domestic Beekeeper*, Northstar, Mich.

FOR SALE—Bright Italian queens, $1 each; $10 per doz. Ready April 1. Safe arrival guaranteed.
T. J. Talley, R. 4, Greenville, Ala.

FOR SALE—3-band Italian queens ready June 1. Untested, each $1; twelve, $10; 100, $80. No disease here and satisfaction guaranteed. A. E. Crandall & Son,
Berlin, Conn.

FOR SALE—Two-pound packages of bees for April and May delivery.
E. Eggeman, Allenville, Ala.

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each; half doz., $4.50, or $8 per doz. Select untested, 90c each; half doz., $5.50, or $10 per doz. Tested, $1.50 each. Safe arrival guaranteed.
Tillery Bros., R. 5, Box 1D, Georgiana, Ala.

GOLDEN ITALIAN QUEENS—Bred for quality, one, $1; six, $4.25; twelve. $8.25; 100, $60. Tested, $2 each.
L. J. Pfeifer, Route "A," Los Gatos, Cal.

QUEENS from one of Dr. Miller's breeders, tested, $1.75 each, $18 per doz; untested. $1.25 each, $13 per doz.; 1 frame nucleus, $3, 2 frames $5, 3 frames $6.50 each, without queens. We have never had any disease here. Safe arrival and satisfaction guaranteed. We have no package bees to offer, and no untested queens, except with nuclei. Delivery April 15.
Geo. A. Hummer & Sons.

2500 COLONIES OF BEES—From these apiaries the Edson Co. produce and sell first-class laying Italian queens, leather-colored or goldens. Write for particulars. Address,
The Edson Co., Biggs, Cal.

FOR SALE—Bees in 2-pound packages, by parcel post; also the finest Italian queens. Delivery and perfect satisfaction guaranteed. Write for prices. Have 700 colonies to supply from. Jasper Knight, Hayneville, Ala.

FOR SALE—3-band Italian queens from best honey-gathering strains obtainable; untested queens, $1 each; six, $5.50; twelve, $10.75. Satisfaction guaranteed. W. T. Perdue,
Route No. 1, Fort Deposit, Ala.

BEES AND QUEENS—Pound packages of bees, $2; ready April 20. Untested queens, $1 each. Good stock. No disease. Order quick.
Pelican Apiary,
Box 108, New Orleans, La.

QUEENS—3-banded Italians, from best stock; untested queens in April, May and June, one, $1; twelve for $10. Tested, $1.50 each; if you want as many as 50 queens, write for prices and discounts on early orders; no disease. Safe arrival and satisfaction guaranteed. O. D. Rivers,
Route 4, Honey Grove, Texas.

WANTED—Bees in lots of 5 to 50 or more colonies. J. F. Coyle, Penfield, Ill.

FOR SALE—Leather-colored Italian queens, tested, to June 1, $2; after $1.50; untested, $1; $10 per dozen. A. W. Yates,
15 Chapman St., Hartford, Conn.

GOLDEN ITALIAN QUEENS and bees; honey-getters, prolific and gentle. Bees by the pound. Write for prices.
J. W. Rice, Box 64, Fort Smith, Ark.

FOR SALE—30 hives of black bees in 8 and 10-frame hives, new and painted; for bulk honey, $6.50 per hive.
J. T. Collins, Ludowici, Ga.

**BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,**
**1Atf 84 Cortland St., New York City.**

**FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.**
**J. F. Diemer, Liberty, Mo.**

FOR SALE—Bees by the pound for early shipment; safe delivery guaranteed.
H. E. Graham, Gause, Texas.

FOR SALE—Italian queens and bees by the pound; early shipments; guaranteed safe arrival and no disease.
Brazos Valley Apiaries, Gause, Texas.

A NICE PACKAGE OF BEES—1-lb. package with untested Italian queen, $3.50; 2-lb. package with untested Italian queen, $4.50; 25 1-lb. packages or more (one order) with queens, $3 each; 25 2-lb packages or more (one order) with queens, $4.25 each. Reference, the Security Bank and Trust Co. of Wharton, Texas.
W. H. Moses, Lane City, Texas.

### SITUATIONS

WANTED—Position, by returned soldier, 23 years of age, married, 5 ft. 11½ in. high, wt. 166 lbs., good health. Have had 3 years' experience in apiary work. Will receive honorable discharge about March 1 and can go to work immediately. Can give best of references. Private Walter A. Barnes,
U. S. Hospital 28, Ward 39,
Fort Sheridan, Ill.

WANTED—For the season of 1919, one or more men to work with bees. State age, experience, wages, and give reference.
A. J. McCarty,
712 Coffman St., Longmont, Colo.

WANTED—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near Summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

WANTED—Will give experience and fair wage to active young man not afraid of work, for help in large, well-equipped set of apiaries for season starting in April. State present occupation, weight, height, age and beekeeping experience, if any.
Morley Pettit, The Pettit Apiaries,
Georgetown, Ont.

WANTED—Two brothers, both single, well experienced in apiary work, orchard and poultry raising, desire to purchase apiary, part cash to be paid down, or are willing to run apiary on shares or for wages. Both elderly men and trustworthy
H. R., care American Bee Journal,
Hamilton, Ill.

### MISCELLANEOUS

PLANS FOR BUILDING—Any size. Patented, natural hen incubator and brooder. Beats all artificial incubators in hatching chicks. Yet it requires no lamps, no expenses, no constant attention. Can be built by anyone in a few hours. If used once you will never do without. Thousands in use. Complete illustrated plans and rights for building, $1. Satisfaction guaranteed.
Bentz Brothers, Granton, Wis.

*The Domestic Beekeeper* has a department that sells subscribers' honey for much more money than the large buyers will pay. This department is free to all paid-in-advance subscribers. Then we buy beekeeper supplies for our subscribers at much below catalog price.

FOR SALE—Seed potatoes.
John H. Duha, Steuben, Wis.

FOR EXCHANGE—A Ford car, late model, for bees or good bee supplies.
H. E. Graham, Gause, Texas.

**OUR PRINTING SERVICE is unexcelled. If you want labels, stationery or circulars, write for samples and prices.**
**American Bee Journal, Hamilton, Ill.**

FOR SALE—Lantern slides relating especially to beekeeping. We are preparing an extended series of slides relating to beekeeping subjects for those engaged in public work. If you need slides to illustrate your lecture, tell us what you want and we will be glad to quote you prices. Slides can be furnished from nearly all pictures which have appeared in the American Bee Journal, as well as of numerous other subjects. We will also be able to furnish advertising slides showing apiaries, etc., with the name of beekeeper, for use in moving picture theatres Advertise your honey to your local people Everybody goes to the movies If you have a good picture we can prepare a slide showing your own apiary
American Bee Journal Hamilton, Ill

### FOR SALE

FOR SALE—All copies of American Bee Journal from January 1, 1910, up to January 1, 1919; also some of 1909. All Gleanings in Bee Culture from September 15, 1907, up to March, 1918. All copies of Beekeepers' Review of 1908 and 1909; also some of 1912, 1915, and 1916. All in good condition.

Five 8-frame wood-bound zinc excluders, 10 8-frame wood and wire excluders, used but very little; in good condition.

Forty acres of land in Kleberg Co., Texas in mesquite honey region.
F. A. Wicklein, Percy, Ill.

HATCHING EGGS—Plymouth Rocks, all varieties; Anconas and Rouen ducks. Illustrated catalog 3c.
Sheridan Poultry Yards,
R. 13, Sheridan, Mich.

FOR SALE—40,000 pounds of No. 1 extracted clover honey and 35,000 pounds of aster honey; both of extra light color, heavy body and fine flavor, in 60-lb. cans.
W. B. Wallin, Brooksville, Ky.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

SONG—"The Plea of the Bee," or "The Honeybee Doing Its Bit." A song for the children as well as for the grown-ups. Sent to any address on receipt of 15 cents.
The Cutting Publishing Co.,
910 Merchants Bank Bldg., Indianapolis, Ind.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—Finest quality clover and buckwheat extracted honey, in 60-pound cans.
O. W. Bedell, Earlville, N. Y.

## SUPPLIES

FOR SALE—We offer the following goods at reduced prices. The books are very slightly damaged, with one or two pages missing in some of them, but bound first-class. The other goods are either second-hand or else shopworn, but are in first-class shape for use:

8 Copies Langstroth on the Honeybee, $1 each, postpaid.
1 copy Original Langstroth, reprint, 50 cents, postpaid.
3 copies Pellett's Productive Beekeeping, $1, postpaid.
1 L'Abeille et La Ruche (French) Langstroth, $1 postpaid.
1 Danzenbaker Smoker, 50 cents postpaid.
6 Clark Smokers, 40 cents each, postpaid.
1 Wonder Smoker, 25 cents postpaid.
4 Easterday Imbedders, 25 cents each, postpaid.
1 Parker Fastener, 20 cents postpaid.
3 Rauchfuss Presses, $3 each, postpaid.
1 large Hubbard Section Press, $1.00.
1 Swiss Wax Extractor, $1.50.
100 Sec. Slats for 4¼x2 sections, $1 for the lot.
20 2-tier Shipping Cases for reg 4¼ sec., $4 for the lot.
26 3-wire Excluders, 10-frame, at 40 cents each.
59 3-wire Excluders, 8-frame, at 40 cents each.
10 pair No. 8 Cloth Gloves at 25c per pair.
Order today.
Dadant & Sons, Hamilton, Ill.

BEEKEEPERS OF THE NORTHWEST—Save by ordering your supplies near home. Standard goods; Factory prices.
George F. Webster, Sioux Falls, S. Dak.

FOR SALE—100 8-frame wood and zinc excluders and 100 8-frame unbound zinc excluders, 25c each; these excluders have only been in use one season and are as good as new; have been thoroughly boiled.
Wm. Ritter, Palmdale, Calif.

FOR SALE—Extra good second-hand cypress supers at 60c and bodies at 80c; also three Root honey extractors, cheap. Write for price.
Mitchell & Mathis, Falls City, Texas.

FOR SALE—2 boiler wax presses, $10 each; 30-gal. tank, $5. All good as new. Also 50 shipping cases and 2,000 sections.
Edw. A. Winkler,
R. F. D. No. 1, Joliet, Ill.

FOR SALE—Super foundation mill, entirely new; will take honey extractor or beeswax in exchange.
Wilbert Harnack,
McGregor, Iowa.

WANTED—Used hives and supers, foundation mills, extractors, bees and bee equipment. State lowest cash price wanted.
W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—130 8-frame Ideal supers with fixtures for comb honey, $65; 130 8-frame comb-honey supers for Wisconsin hive, with fixtures, $65; 50 8-frame Wisconsin hives, without frames, $75.
W. C. Davenport,
2111 Noyes St., Evanston, Ill.

FOR SALE—100 dovetail, 10-frame beehive cases, Langstroth size, filled with Root's make of metal-spaced frames. Prices below catalog quotations.
J. R. Marye, Bunceton, Mo.

FOR SALE—Two extractors, uncapping cans, honey tanks, extracting outfit, hives in flat; all new; bargain. Want bees, queens or honey. The Liberty Press, Box 224, Shenandoah, Ia.

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

A trial subscription will convince you that you cannot very well get along without *The Domestic Beekeeper*.

## HONEY AND BEESWAX

FOR SALE—4 60-lb. cans choice extracted buckwheat honey, 1 60-lb. can clover and buckwheat mixed, 400 sections fine quality buckwheat honey, about 400 sections fine clover and about 200 sections clover and buckwheat mixed in 4¼x1¾ sections. Will sell the whole lot at 19c or a part of it at 20c, f. o. b. here. Send cash with order.
Wilmer Clarke, Earlville, Mad. Co N. Y.

CLOVER-AMBER BLEND HONEY in new 60-lb cans at 25c.
Van Wyngarden Bros., Hebron, Ind.

FOR SALE—Light amber alfalfa honey, nice and thick, 120-lb. cases, 24c per pound, f. o. b. Cottonwood Falls, Kans.
G. E. Capwell.

FOR SALE—1600 lbs. (water white) extracted clover honey; One 2-frame Root automatic reversible extractor; can use honey pump and shafting.
W. O. Hershey,
Landisville, Pa.

FOR SALE—(Clover and heartsease blend) extracted honey in 60-lb. cans at 26c per lb.
Edw. A. Winkler, R. F. D. No. 1, Joliet, Ill.

FOR SALE — Buckwheat honey in 120-lb. cases, at 17c per pound.
C. B. Howard,
Geneva. N. Y.

FOR SALE—No. 1 white extracted honey in No. 10 pails weighing 10 pounds gross; $3 per pail f. o. b. here.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

FOR SALE—Clover, heartsease, No. 1 white comb, $6 per cas ; fancy, $6.50; extra fancy, $7; 24 Danz. sections to case; extracted, 120-lb. cases, 25c per pound.
W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.
A. G. Woodman, Grand Rapids, Mich.

WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.
E. B. Rosa. Monroe, Wis

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

## WANTED

WANTED—A partner with a number of good stands of bees; a No. 1 location. Prefer a middle-aged man and wife. State all your story in first letter. Charter member of the Iowa Bee Association. Separate house to live in.
Harry C. Hartman.
No. 2, Box 12, Braddyville, Page Co., Iowa.

WANTED—to buy between 300 and 500 colonies of bees. Locations must go with it. Give full particulars in first letter. Address,
Box 67, Rigby, Idaho.

WANTED—250 colonies (or less) of bees; name lowest cash price, style of hive used and address.
A. W. Smith, Birmingham, Mich.

WANTED—Used 10-frame excluders, first-class. Describe, with best price.
E. F. Atwater, Meridian, Idaho.

Used honey extractor; cash or exchange—typewriter, incubator, etc. L. Clark, Winona, Minn.

WANTED—150 to 200 colonies of bees to work on shares; extracting outfit.
M. Knudsen,
320 Second St., Albert Lea, Minn.

WANTED—To buy, 300 or more colonies of bees, preferably in northern Michigan.
Closson Scott, 408 Selmont St.,
Warren, Ohio.

WANTED—A number of colonies of bees in standard hives, either black or Italian.
F. M. Bowman, Arcadia, Nebr.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

CABBAGE CUTTER, SIX KNIVES, slices all vegetables rapidly. Prepaid, $1; three for $2. Lusher Brothers, Elkhart, Ind.

WANTED—December, 1917, and January, 1918 numbers of the American Bee Journal. Will pay 10 cents per copy.
American Bee Journal, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

### A BOOK FOR BEGINNERS

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**Texas Beekeepers Item**
**American Bee Journal**

**BOTH ONE YEAR**
**ONLY**

**$1.35**

**FOR THE MAN WHO CARES**

Honey Labels, Stationery, Cards, Tags, Circulars—Everything for the Beekeeper—in the Superb Style and Quality of . .

**Printing that's Different**

AMERICAN BEE JOURNAL, HAMILTON, ILL.

# DISCOUNTS FOR EARLY ORDERS

**LIBERAL DISCOUNTS ALLOWED ON IMMEDIATE CASH ORDERS**

The warm winter will cause abnormally early brood-rearing. Are you prepared?

WE CAN HELP YOU BY PROMPT SHIPMENT FROM OUR LARGE STOCK.

IF YOU HAVEN'T OUR 1919 CATALOG, WRITE FOR IT AT ONCE.

SAVE MONEY ON DISCOUNTS.

MADE RIGHT BEE SUPPLIES
QUALITY SERVICE

**KRETCHMER MFG. CO.**
**Department A** **COUNCIL BLUFFS, IOWA**

# CYPRESS CATALOG

*Durability Problem Solved*

Buy hives only once in a life time and get satisfactory service. Prices are much less, which economy solves the problem of keeping more bees with me and many other beekeepers. My Cypress catalogs, which are now ready to mail out, will tell you all about it.

**J. J. WILDER**
WAYCROSS, GEORGIA

# TYPEWRITER SENSATION

**$3 or $4** monthly **buys** a Beautifully Reconstructed Latest Model Visible Typewriter with back-spacer, decimal tabulator, two-color ribbon, etc. Every late style feature and modern operating convenience. Perfect appearance, perfect action and absolute dependability. Sent anywhere on approval. Catalog and special price **FREE. HARRY A. SMITH (314), 218 North Wells Street, Chicago, Ill.**

## Olds' Marquis Wheat

**60 Bushels Per Acre in Illinois**

PAUL R. LISHER, Farm Advisor for Will County, Illinois, who bought four car loads of seed of us, writes us September 3, 1918:

"I an very glad to report to you that from the Marquis Spring Wheat purchased from you last spring, some of our farmers have secured yields as high as 60 bushels per acre. Yields of 50 bushels per acre are relatively common and practically all the wheat from this seed has yielded 45 bushels per acre or better."

**Olds' 1919 Catalog**

tells all about this wonderful wheat, also other seeds — **Clover, Alfalfa, Timothy, Oats, Corn,** Etc. Samples free. Ask for those wanted. **Garden Seeds, Flower Seeds, Bulbs, Tools.** Write for Catalog.

**L. L. OLDS SEED CO.**
**Drawer W-1** **Madison, Wis.**

# BEES

We furnish full colonies of bees in chaff or single-walled hives, nucleus colonies or bees by the pound in season. Prices on application.

Ten-ounce screw-capped jars, two-gross crates, at $7.50 a gross.

**I. J. STRINGHAM**
**Glen Cove .. New York**

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

---

## Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading. Send us your order for blank books and let us bind your magazines.

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**

---

## GIANT TOMATO-CUCUMBER-PEANUT-10c

**Here Are Seeds of Three Valuable and Interesting Varieties You Should Grow in Your Garden This Year.**

Giant Climbing Tomato

**Giant Climbing Tomato**—Is one of the largest grown. Vines grow very strong and will carry an enormous weight of fruit, very solid, crimson color; specimens often weighing 2 to 3 lbs. each.

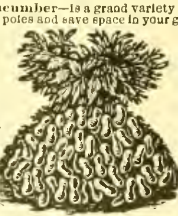
**Japanese Climbing Cucumber**—Is a grand variety from Japan; can be trained to fences, trellises or poles and save space in your garden. Fruits early, growing 10 to 15 inches long, and are good for slicing or pickling.

**Early Spanish Peanuts**—Earliest variety and a great Peanut for the North; easy to grow, enormous yielder, and a few hills in your garden will be very interesting to show your neighbors.

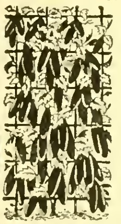
**Special Offer:** I will mail one regular sized **Packet of Tomato, Cucumber and Peanut** for only **10c**, or **3 Packets** of each for **25c.**

My new **Seed Book of Garden Seeds** is included free. Order TODAY.

**F. B. MILLS, Seed Grower, Dept. 11 Rose Hill, N.Y.**



Early Spanish Peanuts



Climbing Cucumber

---

## FOR SALE

Three-Band Italian Queens from best honey-gathering strains obtainable. Untested queens, $1.25 each; 6, $6.50; 12, $11. Satisfaction guaranteed.

W. T. PERDUE,
Route 1, Fort Deposit, Ala.

---

**Bee Primer** for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

---

## PAINT WITHOUT OIL

**Remarkable Discovery That Cuts Down the Cost of Painting Seventy-Five Per Cent**

**A Free Trial Package is Mailed to Everyone Who Writes**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

---

Write for Price List and Boooklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

---

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

---

## Golden Queens

After April 1, untested $1.25 each, 6 for $7, or $13 per doz. or 50 for $48. Also untested 3-band at same price; tested, $3 each, and my very best $5 each. Satisfaction.

**R. O. COX**
**Route 4, Greenville, Alabama**

---

**Don't stop advertising.**
because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.

**American Bee Journal Hamilton, Illinois**

---

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

# THE DEROY TAYLOR COMPANY

**NEWARK, WAYNE COUNTY, NEW YORK**

HAVE the most complete stock of Bee Supplies and Honey Containers, also Honey Separators and Smokers east of Buffalo, N. Y.; are located on the main railroads; are extensive Commercial Beekeepers, and offer Lewis Beeware (made like furniture) and Dadant's Foundation because we have found it the best. Now is the time to prepare for those early swarms from the bees that are wintering so well. Send us that list and we will quote you very low prices, quality considered. We also invite you to begin to prepare to come to the State Meeting at our Home Apiary in August. Watch this space for announcements regarding this meeting.

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

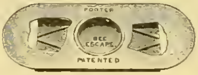
I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY



**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

# ORDER BEE SUPPLIES EARLY

We can supply you with the best of everything — Dovetailed Hives, Supers, Frames, Honey Sections and Comb Foundation.

Be prepared for the coming season. Our catalogue ready January 10. Send for it.

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

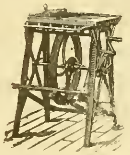
# BEE SUPPLIES

**Let Us Figure With You**

We know we can satisfy you on price and $8.00; select tested, $1.25.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

# BARNES' Foot-Power Machinery



Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# The DOMESTIC BEEKEEPER BARGAIN WEEK

HUTCHINSON once told the writer that it cost him two dollars to secure a new subscriber for the **Review,** the name now being changed to the **Domestic Beekeeper.** This meant that he paid out large sums for advertising, circulars, postage and clerical help, which all cost him good money. The thought occurred to Townsend, the present owner of the **Domestic Beekeeper,** why not give this extra money to the subscriber, instead of paying it out as mentioned above? And we have decided to do this very thing. Listen: The week beginning Monday, March 10 and ending March 15 will be bargain week for new subscribers to the **Domestic Beekeeper.** During this week, **and this week only,** after which the price will go back to the original price of a dollar a year, we will accept 50c for a full year's subscription to the **Domestic Beekeeper.** A postoffice money order for 50c will cost but 3c, or a check will do, and be sure your order bears one of the following dates: March 10, 11, 12, 13, 14 or 15; six days only; other dates the regular dollar a year price will be strictly adhered to.

It is customary for business houses to have bargain days, at which time they secure new customers; why not a bee journal have bargain days to secure new subscribers? Remember this is the first bargain days ever offered by a bee journal, and may be the last, so we would suggest that all you producers who have been thinking of subscribing for the **Domestic Beekeeper** take advantage of these liberal terms and get a full year's trial subscription to the **Domestic Beekeeper** at half price. Remember that a postal order for 50c will pay your subscription to the **Domestic Beekeeper** a full year, providing you order it March 10, 11, 12, 13, 14 or 15. No other dates will do, for immediately following this bargain week, the price of the **Domestic Beekeeper** will be a full dollar a year, the regular price.

**DOMESTIC BEEKEEPER**
**NORTHSTAR, MICHIGAN**

*Do you realize,*
*Mr. Beeman,*
*that*
*the first of March*
*has passed?*

June will soon be here
with its
hustle and bustle
for
*Bee Supplies*

"GRIGGS SAVES YOU FREIGHT"

## TOLEDO

Why not send us your order now and get the goods ready? Don't delay. A list of goods wanted brings prices back by return mail.

## *BEESWAX*

We use large quantities. Cash or in exchange for supplies. FREE catalogue ready to mail.

***S. J. GRIGGS & CO.***
*Department 25* *TOLEDO, OHIO*

"GRIGGS SAVES YOU FREIGHT"

## New Honey Label Catalog

It is a debated question whether honey will remain at its present price level when normal times come once more. The foresighted beekeeper is the one who will prepare for any contingency, by assuring himself of a steady market, regardless of price fluctuations.

This can best be done by developing the home market to its fullest extent and attractive labels on his packages are one of the most important things to consider when working up local demand for honey. They should stand next to superior product, and neat, clean packages.

Our new label catalog lists many distinctive labels which you will like. Write for your copy today. It is free. Beekeepers' Stationery is also offered.

**AMERICAN BEE JOURNAL, Hamilton, Ill.**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

BUY

## THE FAMOUS DAVIS GOLDENS

And get big yields from gentle bees. Write for Circular and Price List.

BEN G. DAVIS,
Spring Hill, Tennessee.

**THIS IS THE CYPRESS "MARK OF DISTINCTION"**

S C M A
No. of Mill
TRADE MARK REG. U.S. PAT. OFFICE

**IT'S STAMPED ON EVERY PIECE OF "TIDEWATER" CYPRESS**

**"ALL HEART" FOR BEE-KEEPERS' USE**
(Of Course)

THE MAN WHO BUYS CYPRESS MINUS THE ARROW TRADE-MARK AND THINKS HE IS GETTING

**"TIDEWATER" CYPRESS**

*"The Wood Eternal"*

IS EITHER EXTREMELY "SHORT-SIGHTED" OR EASILY SATISFIED, **OR BOTH.**

WISE MEN SAY **"SHOW ME!"**
(THE TRADE-MARK)

**"ALL HEART" FOR BEE-KEEPERS' USE**
(Of Course)

**SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION**
1251 HIBERNIA BANK BLDG., NEW ORLEANS, LA., or
1251 HEARD NAT. BANK BLDG., JACKSONVILLE, FLA.

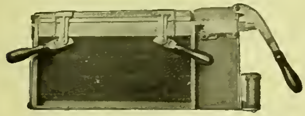
TRADE MARK REG. U.S. PAT. OFFICE

**Service and Quality**

**Bee Supplies** **Bee Supplies**

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

**C. H. W. Weber & Company**
**2146 Central Avenue** **CINCINNATI, OHIO**



PAT. APPLIED FOR
**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

Read ***"THE BEEKEEPER"***

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**
**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# Fifty Years

## of Service to Beekeepers

## 1869 1919

**A. I. ROOT**
The Man Behind the Root Line

FOR FIFTY YEARS A. I. Root has manufactured and sold Beekeepers' Supplies and appliances. The goods turned out by the "House of Root" are as good as the man behind them. The service rendered by the "House of Root" is as unfailing and as untiring as have been the efforts of this man in establishing the bee and honey business thruout our land upon a solid and substantial basis.

THE ROOT AIM has always been to serve all beekeepers in as many ways as possible, whether it be to —

MAKE AND SELL THE BEST SUPPLIES

PUBLISH THE BEST BEE LITERATURE

MARKET HIS WAX AND HONEY AT THE HIGHEST PRICES

PRINT HIS LABELS, CARTONS, AND STATIONERY

PROVIDE HIM WITH THE BEST AND MOST AUTHORITATIVE INFORMATION

THE A. I. ROOT COMPANY has always endeavored to serve the Beekeepers' interests in in the best possible manner, and to GIVE A SQUARE DEAL TO ALL. This is still our policy.

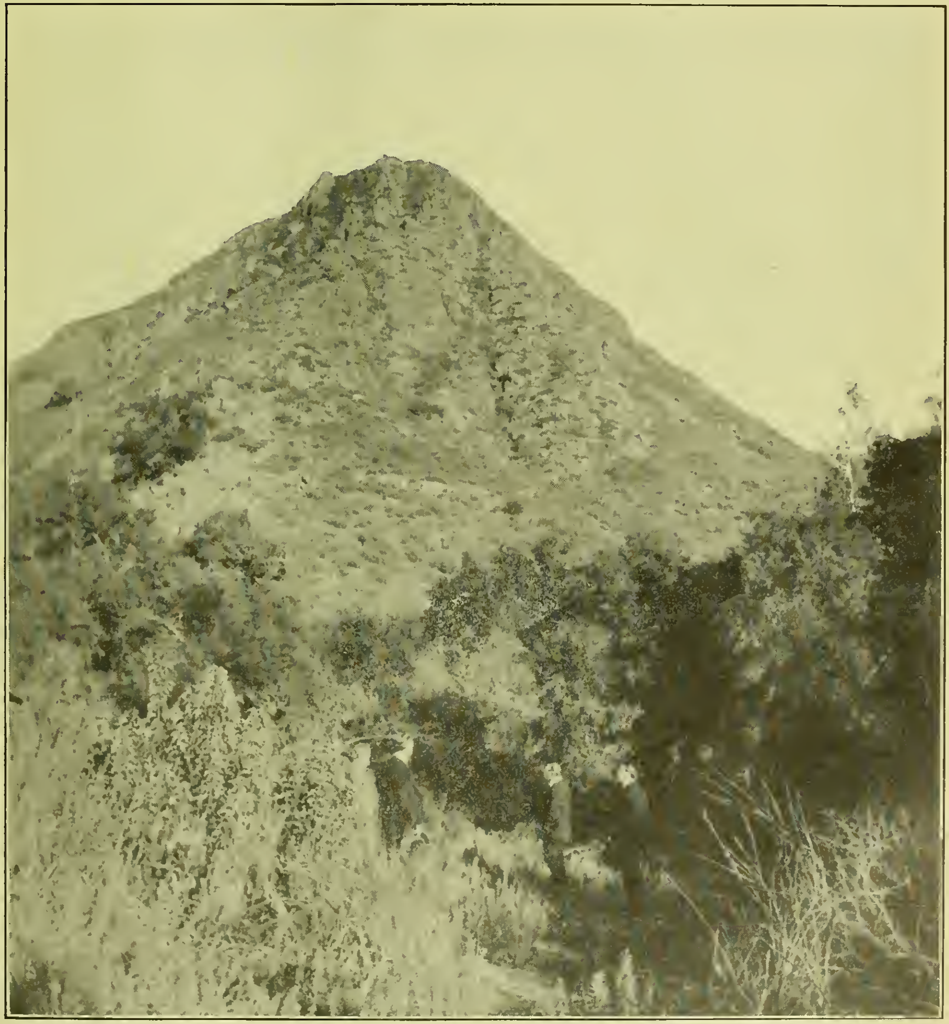
## THE A. I. ROOT COMPANY

MEDINA, OHIO

New York
Chicago
Philadelphia
St. Paul
San Francisco
Norfolk
Los Angeles
Indianapolis

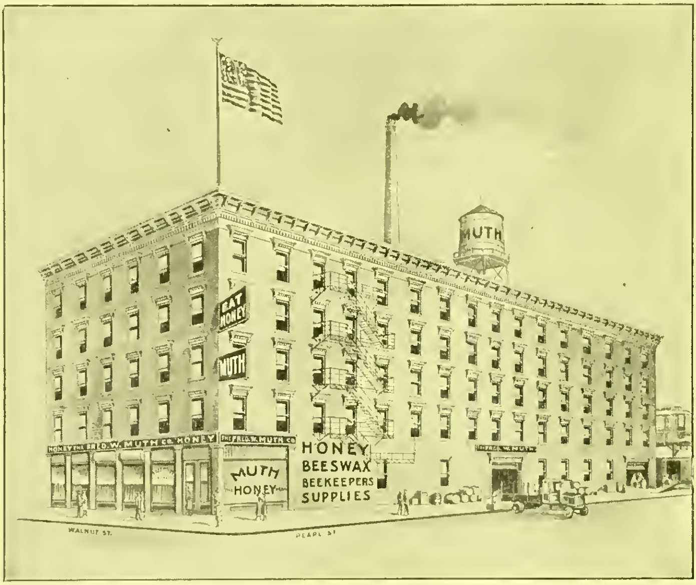
# AMERICAN BEE JOURNAL

APRIL, 1919



Harbison Mountain, Overlooking the Site of Harbison's Original Location in Harbison Canyon, in California

# Here's a Reproduction of Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

**LEWIS' BEEWARE**

**DADANT'S FOUNDATION**

**ROOT'S SMOKERS, EXTRACTORS, ETC.**

**OLD COMBS AND CAPPINGS**
Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**
Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

**THE FRED W. MUTH CO.** Pearl and Walnut Streets
CINCINNATI, OHIO

"THE BUSY BEEMEN"

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price $1.50**
Mailing weight, three pounds

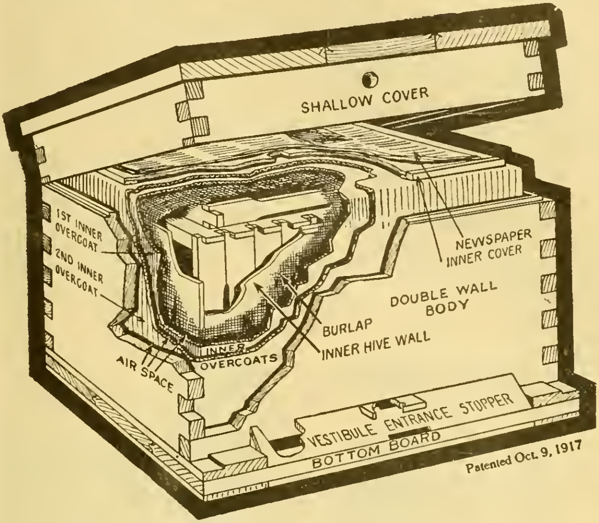
ALL FOR SALE BY

**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

# WINTER PROBLEM SOLVED

BY

# THE HIVE WITH AN INNER OVERCOAT



## PROTECTION HIVE

Simplify your Wintering Problems. How would you like to enliminate the expense, extra labor and inconvenience of that back yard full ot contrivances, in Winter Cases and other forms of packing insulation? Wouldn't it be worth quite a lot to you to avoid such congestion? It will be to your advantage to avoid excess equipment. The Protection Hive will give you a neat, compact, substantial and efficient outfit.

For your information and to be convinced of the efficiency of this hive, send for a sample. For a limited time one sample hive will be sent set up and equipped as per this illustration, at the

**Special Price of $5.00**

Our new illustrated catalog for the season of 1919 and a special circular of the Woodman Protection Hive, showing 10 large illustrations will be sent upon request. Send us a list of your requirements and let us figure with you on your wants for the coming season.

**A. G. WOODMAN CO., Grand Rapids, Mich., U. S. A.**

# EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

**A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
1929-1931 FOURTH STREET
SIOUX CITY, IOWA

"falcon" **IT MEANS** "falcon"

**Simply This:** We have got to "carry on" with all our might and with more "pep" than ever before. You are urgently requested to prepare to do your part when the time comes to "carry in" the enormous honey crop for which we must prepare.

PREPARE IN THE RIGHT WAY BY ORDERING EARLY

This will save time, money and honey, and will be gratifying to your ambition to help your country and fellow citizens. Let them have a good quality of honey and lots of it. **You Can Do It.** Get the goods that you are going to need and have them ready for the beginning of the season. To make this more of a saving to you, we are giving an **early order cash discount of 10% for shipment prior to December 1, 1918.**

**Use only the goods that are tested and known to be the best and most reliable; therefore, "falcon" goods will give the best results. Our goods are made by experienced and interested workers. This is the reason we are known in every land.**

SEND THAT LIST OF REQUIREMENTS TO US AT ONCE FOR PRICES

Catalog and "Simplified Beekeeping" on request

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Best Beehives Come From**

**The Diamond Match Co.**

(APIARY DEPT.)

**MANUFACTURERS OF**

**Beekeepers' Supplies**

**CHICO, CAL., U. S. A.**

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**

**Apiary Department** **CHICO, CAL., U. S. A.**

FREE FOUNDATION

We want the beekeepers to verify the results of our own tests among our 3,000 colonies of bees and the results obtained by other large beekeepers who have used our Foundation extensively. Therefore, after May 1 we will furnish our **"SUPERIOR" FOUNDATION** free to all beekeepers applying for same for experimental purposes, they in turn to report to us the results of their tests.

**DON'T TAKE OUR WORD** that "Superior" Foundation is unexcelled in quality by any other make. Unsolicited testimonials such as the following from beekeepers that we have never met, speak for themselves:

Superior Honey Co., Ogden, Utah. Lazear, Colo., Feb. 10, 1919.

Gentlemen: Please find enclosed check for 127 pounds of Medium Brood Foundation. Your Foundation has given as good a success as any I have ever used. The bees take to it as soon as the Foundation with greater claims. I have been unable to see any difference whatever. I am going to boost your Foundation whenever I can.

Let your own bees test our Foundation. Yours truly, ROBERT G. CRAIG.

SUPERIOR HONEY CO., OGDEN, UTAH

**(Manufacturers of Weed Process Foundation)**

**"Best by Test"**

**EARLY ORDER DISCOUNTS WILL**

**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

**or J. W. ROUSE, Mexico, Mo.**

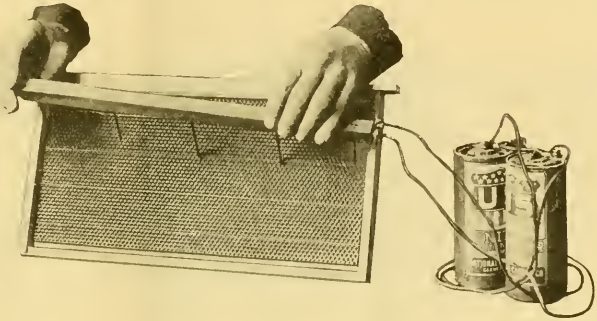
**FRENCH**

**ASPARAGUS BEANS** bear GIGANTIC pods **30** inches long. Produce abundantly anywhere. Wonderfully delicious—rare flavor entirely stringless. Bring big market prices. A century old Oriental delicacy that has been long grown and prized in the best American and French gardens. A valuable companion crop for beekeepers. Free Bulletin if Bee Journal is mentioned. Pkt. (about 300 seeds), $1, postpaid. **J. A. & B. LINCOLN,** Growers and Importers, 39 South La Salle Street, Chicago, Ill.

# PERFECT WORKER COMBS

can only be secured by using full sheets of bee comb foundation and making certain that frames are properly wired and that the wires are well imbedded into the foundation.

**The Electric Imbedder,** operated with two dry cells or with a small transformer in connection with your city current imbeds the wires perfectly. The current passing through the No. 30 wire heats it so that it melts its way into the foundation.



Patented January 1, 1917

The wire retains its heat long enough so that the hot wax closes in over it and the wire is actually "cemented" into the foundation with no chance to pull loose. With a little precaution, frames so wired may be transported with safety from the home yard to outyards in a car or light delivery truck. This would be inadvisable with frames having wire imbedded with the ordinary spur imbedder.

The use of the electric imbedder will increase your proportion of perfect worker combs.

| PRICES ARE AS FOLLOWS | | MAILING WEIGHT |
|---|---|---|
| **Electric Imbedder without batteries** | **$1.25** | 1 POUND |
| **Electric Imbedder with two dry cells** | **2.25** | 6 POUNDS |
| **Transformer for 60 cycle 110 volt current** | **3.50** | 2 POUNDS |

*If you are electrically inclined, a very satisfactory tranformer may be made at home. Directions free with each imbedder.*

**Order of your dealer or of**

**DADANT & SONS** HAMILTON ILLINOIS

# THE BEST IS THE CHEAPEST

This applies especially to bee supplies.

Yes, in some isolated cases small lots of inferior goods can be bought for less money than

## *Lewis Beeware*

But bear in mind that when you buy **Lewis Beeware** you buy something else besides good material and splendid workmanship— This something else is

## *Lewis Service*

It costs money to establish and maintain a distribution service whereby no matter where you are you find **Lewis Beeware** almost at your own door—to do this **Lewis** Distributors must stock up in advance and be all in readiness when the season comes to give you **what you want and when you want it.**

## *A Word About the Price of Bee Supplies*

Remember labor and lumber are the important elements entering into **Lewis Beeware.**

## *First—the Cost of Labor*

has not decreased since the Armistice was signed and prospects are it will be no lower for some considerable time to come.

## *Second—the Cost of Lumber*

is determined principally by the cost of labor and transportation. Both of these are high and will stay high—everyone agrees.

*In a nut shell Lewis Beeware is sold at prices consistent with prevailing markets and is worth all it costs.*

*Order Lewis Beeware Early. Prices will be no Lower this Season*
*Insist on the Beeware Brand*

**G. B. LEWIS COMPANY**
**SOLE MANUFACTURERS**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS U.S.A.
MAKES THE FINEST

**Watertown, Wisconsin**

AMERICAN
BEE JOURNAL

VOL. LIX—NO. 4 HAMILTON, ILL., APRIL, 1919 MONTHLY, $1.00 A YEAR

# THE BEE-FLOWERS OF NORTH AMERICA

BY JOHN H. LOVELL

Note. There are thousands of bee-flowers which are not honey-plants, and many honey-plants are not bee-flowers, although the bees get honey from them. This article endeavors to make clear the importance of bees to flowers. Bee-flowers are flowers which are adapted to bees rather than to other insects. When the author says that the blackberry is not a bee-flower, he means that this plant is not dependent upon bees, so long as other insects are abundant.—Ed.

IN the diverse, yet inseparably united relations of nature, bees play three very important roles, as honey-makers, flower-makers and fruit makers. As makers of honey the habits and industry of the honey-bee have excited wonder and admiration for many years, but it is only recently that their services in the production of fruit have been appreciated. Modern fruit culture is dependent on bees. Many cultivated fruits are self-sterile, and all appear to yield better when cross-pollinated. Every fruit plantation should have its apiary. The service rendered by bees (both social and solitary) to this country annually in the pollination of fruits and vegetables, buckwheat, fodder plants and many flowers certainly exceeds in value $100,000,000, in its widest sense, indeed, it is beyond price.

There is not a person living who comprehends what our flora would be like, if there had been no bees. They have been the unconscious builders of thousands of bright-colored, attractive blossoms. Alone among insects they feed their brood on pollen, and to store in their cells a sufficient quantity of it requires countless visits to the bloom of plants throughout the entire season. It was a momentous epoch in the world's history when the ancestors of the bees became flower visitors. These primitive insects were wasp-like in appearance, with smooth bodies and short tongues. They tunneled in the ground, as is still the habit of most solitary bees; and, when they began to provision their nests with balls of pollen instead of dead insects, the foundation was laid for the prosperity of the future race of bees, and indirectly for a powerful influence on mankind.

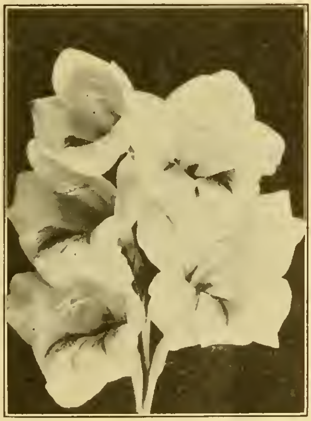


Fig. 1.—Gladiolus. A bumblebee flower

While bees have been a more important factor in the development of the majority of conspicuous flowers in our flora than any other group of insects, the effect of their visits is most evident in bee-flowers. A bee-flower has the nectar concealed and is, or was, chiefly pollinated by bees, as white and red clover, the mountain laurel and the larkspur.

Many of them are valuable honey-plants; and, in showing us the ways in which bees have modified flowers in the past, they should teach us some useful lessons in regard to the possibilities of the future.

A list of North American bee-flowers shows that they are very widely and unevenly distributed in the different plant families. A great family, as the pea, mint, or figwort family, may consist almost entirely of bee-flowers, while there may be none, or only a few, in other large families. There are no flowers adapted to bees in the pink, mustard or carrot families, and they are likewise absent from that immense group, the Compositæ, which contains the asters, goldenrods and thistles. The inflorescence of this family represents Nature's greatest triumph in flower building, and is well worthy of the careful consideration of both beekeeper and botanist. No other family contains so many honey-plants. The individual flower is of little significance, and conspicuousness is gained by massing many of them in a head, an arrangement which permits insects to visit them very rapidly. Intercrossing, economy of time and material, a large number of seeds and their wide distribution have all been perfectly attained. In this the most successful of plant families there is a large and varied company of visitors to the flowers and little modification of the corolla, just the opposite of conditions in the orchis family, to which we shall refer a little later.

In order to obtain a clear understanding of bee-flowers it is necessary to consider more in detail a few of the common species. Let us begin with the lily family, which contains so many familiar field and garden flowers, among which are the bee-flowers, Solomon's seal, the twisted stalk, grape hyacinth, lily-of-the-valley, asparagus and squills. The green tubular flowers of Solomon's seal are pendulous and adapted to bumblebees. The deep blue flowers of the grape hyacinth *(Muscari)* are urn-shaped, hang downward, and bees gather the nectar from the oblong clusters, which resemble bunches

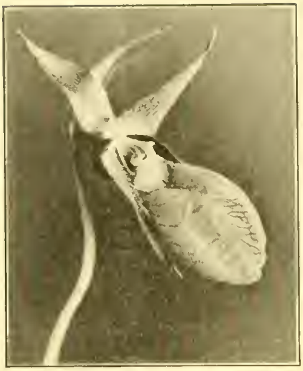


Fig. 2.—Lady's slipper. A small bee-flower

of small grapes. Bees visit the little bells of the lily-of-the-valley for pollen only. Asparagus is a good honey-plant and the inverted green flowers yield nectar freely; it is extensively cultivated in America and grows wild so abundantly on the Russian steppes that the cattle feed upon it like grass. The lilies are chiefly pollinated by butterflies. In the lily family the bee-flowers differ from the other forms chiefly in their pendulous position and longer and partly closed corolla.

But in the orchis family we meet with a number of bumblebee flowers, as the snowy orchis *Pogonia* and *Arethusa*, which are brilliantly colored and very irregular in form. This is a family of marvels, with an endless variety of bizarre forms, in some instances mimicking bees, flies and birds; one species *(Catasetum)*, produces three flowers so unlike that when they were first brought to Europe they were described as belonging to three different genera. Imagine, then, the consternation of the botanical species-maker when Sir Ralph Schomburgh declared that he had seen all three flowers growing on one plant. A typical orchis flower consists of 15 organs, but usually they are so modified and united that only 7 or 8 can be discovered. Unlike the Compositae, the individual flower is very highly specialized, the nectar is deeply concealed (an orchid from Madagascar has a nectary ten inches long), and visitors are few both in kind and number. Many of the flowers fail to set seed, sometimes not one in a thousand, and much of the seed proves sterile. The species are rare and do not succeed well in competition with hardy plants. The orchis family is far less successful than the Compositae, and we are forced to conclude that elaborate modification and adaptation to a few insects is apt to prove a disadvantage. Of the 5,000 species none of them are good honey-plants, and only one, the vanilla bean, is of economic importance.

The lady's slipper *(Cypripedium acaule)* is a ground-bee or Andrenid flower. Small bees of the genus Andrena enter the slipper between the two front elastic folds, which immediately close again after it. The trapped bees make their escape through one of the two small holes at the base of the flower, coming first in contact with the stigma and then rubbing from the anther pollen which is carried to the next flower visited. (Fig. 2.)

In the American Bee Journal for August, 1917, brief descriptions were given of the columbine, monkshood and bee-larkspur, bumblebee-flowers frequently cultivated in gardens. Other peculiar shaped bee-flowers are the Dutchman's breeches *(Dicentra)*, bleeding heart, climbing fumitory, the pale *Corydalis*, the jewelweed, and the blue violet. The object of these odd forms, so far as they are not an incidental result, is to compel the bee to pursue a fixed path to the nectar, so that pollination may be effected with greater certainty, e. g., in the violet the bee is compelled to come in contact first with the stigma and then with the pollen, since it must run its tongue through the cone of anthers in the center of the flower in order to obtain the nectar. Many bee-flowers are so dependent on the visits of the bees that in their absence they fail to produce seed, as red and white clover, *Salvia* and larkspur.

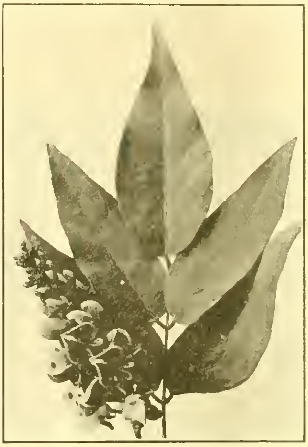


Fig. 3.—Wild bean. A bee-flower growing in damp thickets

A very remarkable bee-flower from Europe, the seed of which may be obtained from any florist, is the fennel-flower, or ragged lady, or, as it is sometimes called from its finely dissected foliage, love-in-the-mist *(Nigella damascena)*. The eight petals are transformed into nectaries, and in each one there is a little bowl or cavity covered with an elastic lid. Bees are the only insects clever enough to lift this lid and suck the nectar, and when they go away it again falls into place. Clearly in the absence of bees this flower would never have been evolved, and clearly, too, bees are the most skillful of all flower-visitors.

Bee-flowers are almost entirely absent from the rose family, but there is one that well deserves our gratitude—the raspberry. The blackberries, the plums, the cherries, the thornbushes, are not bee-flowers, but the raspberry is a true bee-flower, although it is also visited by other insects. The flowers are inverted, and the petals stand erect, crowding the stamens against the cone of pistils in the center; the nectar is secreted by a ring between them. Bees can cling to the under side of the flower and reach the partially concealed nectar better than other insects. Perhaps the reason the blackberry yields much less nectar than the raspberry is because it is not a bee-flower.

The various steps by which a tubular bee-flower may be evolved are well illustrated by the currants and gooseberries, shrubs familiar to every farmer. The petals are small and scale-like, and it is the sepals which are chiefly employed in shutting out other insects. The common red currant has greenish nearly flat flowers, the broad sepals open widely and the nectar can be readily gathered by many insects. But in the European gooseberry *(Ribes Grossularia)* the blossoms are little hanging bells with the entrance narrowed and partly closed by a fringe of hairs. Flies cannot obtain much of the nectar. The black currant *(R. nigrum)* has still deeper bells. Honeybees not only gather nectar from the flowers, but also in their haste open the buds. Slightly different stages are shown by many other species; but in the golden currant *(R. aureum)* the calyx is cylindrical, nearly half an inch long and the only visitors are bees. The bright golden flowers change with age to a deep red, a color change which easily distinguishes the older flowers which have been pollinated and have ceased to secrete nectar. Nature often speaks in enigmas, but at times she is a very patient teacher, revealing her methods step by step, if we will only take the trouble to observe them. But mankind is too often typified by the man

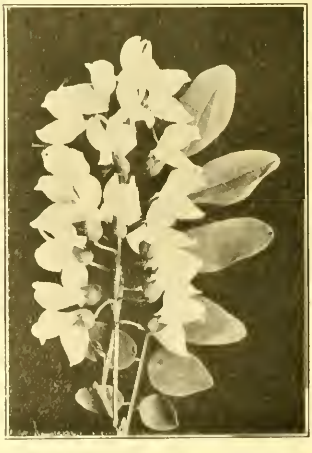


Fig. 4.—Black locust. A bee-flower

in the house of the Interpreter, who, with eyes cast down, raked to himself sticks and straws, and would not look up and behold the one who offered him a celestial crown.

The pea family, or Papilionaceae (Gray makes this family a sub-family of the pulse family or Leguminosae), consists almost wholly of bee-flowers, of which there are some 5,000 Among them are many excellent honey-plants, as the clovers, alfalfas, sweet clovers, vetches, false indigo, sainfoin and locust. The butterfly-shaped form is well shown by the sweet peas, with its broad, showy standard, wing petals and keel enclosing the stamens and pistil. Both the individual flowers and the flower-clusters are highly attractive and conspicuous; the clovers and vetches brighten large areas with their bloom, and in Texas the blue lupine carpets the ground for miles with its blue blossoms. Of the 197 species in the northern states, 39 are white, 33 yellow, 13 red, 88 blue-purple, and 24 blue. The predominance of blue and blue-purple flowers is noteworthy. When more than two species occur in a genus it is seldom monochromatic, it usually contains flowers of more than one color; of the clovers, 4 are white, 3 yellow, 4 red and 3 red-purple; of the tick-trefoils, 2 are white, 1 red and 19 blue-purple. The flower fidelity of a bee is greatly helped by these differences in color. (Fig. 3.)

This great family of bee-flowers is in so many ways unique among plant families that we are reluctant to leave it. Why, when bee-flowers are wholly absent or few in number in so many families, does there occur this vast assemblage of them in a natural group? This is not a matter of chance. The teleologist of a century ago would have told us that they were made so, and thus have dodged the question and closed the door of investigation. Today we seek for actual causes. The abundance of these plants is partly due to their great vegetative vigor, which is partially explained by their strong root system and to the presence of nitrogen-fixing bacteria on the roots. Another cause is the great vitality of the seeds which are longer lived than those of any other plant family; certain legume seeds retain their viability after 150 to 250 years. Everyone knows that beans will germinate after years in storage. Fig. 4.

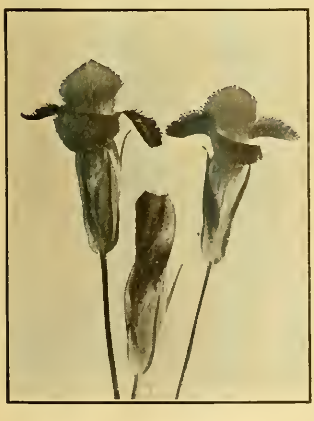


Fig. 5.—Fringed Gentian. A bumblebee flower

The flowers of this family at some time in the remote past were regular in form, as they still are at times in the common laburnum; but the butterfly-shaped corolla was very early developed and was handed down to the various genera as they successively appeared. Many species are very efficiently pollinated by bees; but others are not, and many flowers show slight imperfections, as though Nature, like Jove, had nodded at times in the never-ending work of creation. The normal flowers of the wild peanut are generally barren, lucerne secretes nectar longer than is needful, bees puncture some species and rob others through crevices, while the garden pea is wholly self-fertilized. I know of but one bee in the northern states able to depress the keel of the sweet pea, and that is the large leaf-cutting bee *(Megachile latimanus)*. There can be no doubt that many of the species would be better off if they received, like the Compositae, a greater variety of visitors.

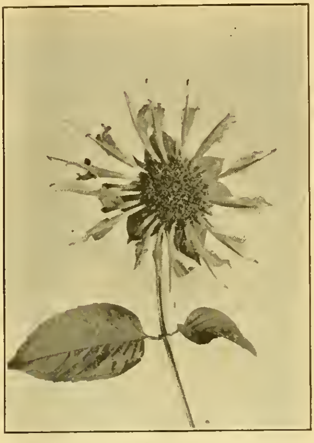


Fig. 6—Bee-balm. A bee-flower of the mint family

In the heath and blueberry families there is another great group of bee-flowers; but unlike the members of the pea family they are all shrubs or small trees. (Fig. 10.) The Rododendrons and Azaleas are handsome bumblebee flowers, but the rotate blossoms of the mountain laurel invite bees of all kinds. Other familiar genera are the checkerberry, fetter-bush, *Andromeda*, trailing arbutus, sourwood, leather-leaf, bearberry, and heather, several of which are indispensable to bee culture. The flowers are small, white or pink, urn-shaped, often pendulous, and the pollen is sprinkled over the bees from pores in the ends of the anthers. Sour-wood, in the Appalachian region, is one of three leading honey-plants.

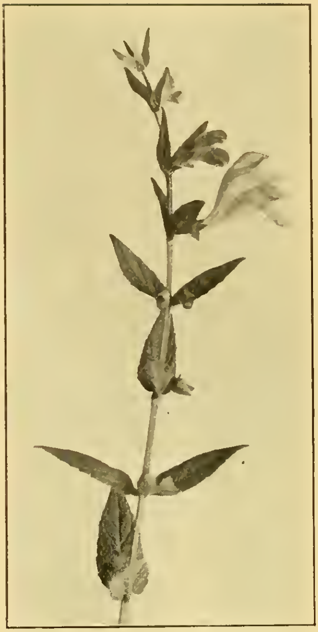


Fig. 7.—Skullcap. A two-lipped bee-flower of the mint family. The long corolla tube points to bumblebees as the most important pollinators

The heathers or heaths are not indigenous to America, although three species occur locally in eastern New England; but in northern and western Europe heather or ling *(Calluna vulgaris)* covers vast areas of waste or sterile lands called moors. When it grows a yard tall, the fine evergreen leaves, the purple stems, and profusion of pink flowers present an expanse of color long to be remembered. Its uses among the peasants are numberless, being employed for brooms, brushes, baskets, fuel, brewing, roofing, beds, dyeing and fodder. Another beautiful heath, the purple heath *(Erica cinerea)* is also common on the lower moors of Great Britain. Both secrete nectar plentifully and furnish a generous surplus of amber-colored honey, with an aromatic flavor, but so viscous that it is difficult to extract. In southwestern Africa the heaths reach their maximum and the 500 species are a prominent element in the vegetation of that region, reaching the height of 12 feet and being covered with white or pink blossoms for a large part of the year.

Blue bumblebee flowers among the gentians delight the traveler in the Alps with their vivid masses of blue coloring, and the blue bellflowers are also partly bumblebee flowers. (Fig. 5). Another blue bee-flower is borage, which has become so common wild in Australia that it is listed as

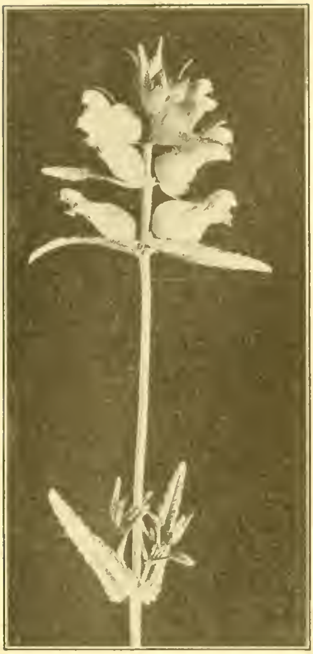


Fig 8.—Yellow rattle. A bee-flower of the figwort family

a honey-plant. The flowers of the borage family are often at first red and later change to blue, and several species are filled with coloring material. In the sheep pastures of New Mexico there grows blood purslane (*Plagiobothrys arizonicus*); "when the sheep find a patch of it, it colors their heads red clear to the ears."

In the mint family *(Labiatae)* and figwort family *(Scrophulariaceae)* there are many bee-flowers, which stand nearly horizontal and are mostly 2-lipped. According to the way the lips have developed the larger flowers exhibit strange fantastic forms, which mimic the heads of reptiles, animals, or inanimate objects; such are the turtlehead, snapdragon, monkey-flower, toadflax, foxglove, skullcap, shoe-flower, painted cup and dragon-head. The species in both families number nearly 5,000, and are chiefly herbaceous. Among the more important honey-plants in the mint family are the sages, catnip, hoarhound, pennyroyal and motherwort; but in the figwort family honey-plants are rare, perhaps the best known being the figwort. Neither family promises to be of much benefit to the beekeeper, except locally. (Figs. 6, 7 and 8.)

Regular flowers, it will be noticed, stand vertical, that is, they either face the sky or the earth; while irregular flowers always stand more or less horizontal. In the dense flower-cluster of the horse-chestnut the lateral flowers are irregular, and the single terminal flower is perfectly regular. A vertical flower is approached by insects from all sides with equal ease, and the forces which might tend to change its form are in equilibrium, or counterbalance each other, as in the buttercup and strawberry; but when a flower stands horizontal, like the snapdragon or sage, bees nearly always alight on the lower side of the corolla. The lower petals become transformed into a lip, which serves as a landing stage; and the upper petals are modified into a helmet to protect the anthers from rain. A bilabiate flower, is, after all, not such a great marvel. (Fig. 9.)

So long as a flower is flat like a plate, it attracts a varied company of insects; but as soon as it becomes bilateral many insects either cannot find the nectar or are unable to reach it, with the inevitable result that the visitors are restricted chiefly to bees. None but bees can learn from observation to find the nectar of fennel-flower. No bees but bumblebees have tongues long enough to reach the nectar of the bee larkspur, and none but bumblebees are strong enough to push their way into flowers like snapdragon.

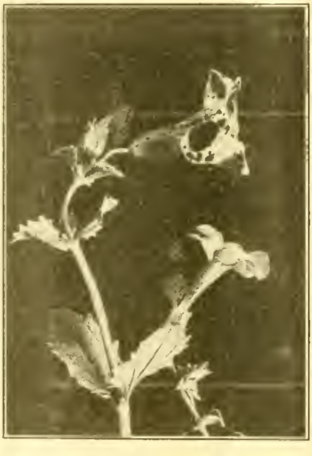


Fig. 9.—Two varieties of the monkey flower. A bumblebee flower. Note the horizonntal position of blossoms.

The bee-flowers of Europe are essentially the same as those of North America and belong to the same genera and families, but the species are often different. In the German and Swiss flora there are 482 bee-flowers, of which 152 are white and yellow, and 330 red, violet and blue. Honeybees and bumblebees have been observed to make 20 per cent more visits to the red and blue flowers than to the white and yellow. East of the Rocky Mountains and north of Tennessee there are 366 red and red-purple flowers, and 519 blue and blue-purple flowers; and a large per cent of them are bee-flowers. Why are so many bee-flowers red and blue, especially blue? There is no reason to suppose that blue coloration gives bees an aesthetic pleasure, but on the other hand I have shown experimentally that they can readily distinguish blue from other hues. So keen an observer as the honeybee might easily learn to associate blue with flowers likely to supply it with nectar. In primitive genera in which the corolla has been little modified blue is almost entirely absent, as in the yellow buttercups, fivefingers and St. John's-worts; and in the white water-plantains and saxifrages, and the yellow and white mustards. While there are exceptions, it is certain that blue coloration is correlated in some way with the high specialization of the corolla. Whatever the origin of floral colors, there is no doubt but what they are an advantage, and that in the absence of insects, especially bees, they would never have been evolved.

Bees have been the most important agents in the development not only of bee-flowers, but of most conspicuous blossoms. We cannot imagine what the world would have been without them, or estimate the enjoyment that would have been lost, or the power for good that would have been forever missing; but we know that humanity would have been less perfect than it is today. They have been the humble, unconscious instruments in producing results that enter into the very foundations of modern civilization.

## Intensive Beekeeping

By F. W. Sladen, Apiarist, Dominion Experimental Farms.

IN a locality where colonies are ready to swarm a month before the principal honey-flow begins, an increased number of bees can be raised for honey production by wintering two queens in the hive.

This conclusion has resulted from investigations the writer has been making into conditions at Ottawa,

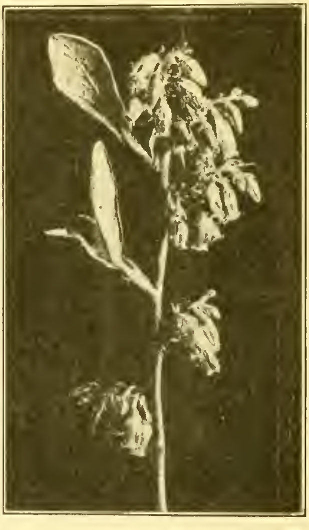


Fig. 10.—Black huckleberry. A bee-flower with bell-shaped corolla

Canada, where a honey-flow from dandelion causes swarming at the end of May in colonies that have wintered well, and the honey-flow from clover does not begin until the end of June. It is simply the guiding principle of spring management, the raising of a maximum number of bees in time for the principal honey-flow, pressed, under specially favorable conditions, to a stage beyond what is possible by following the accepted rules of management.

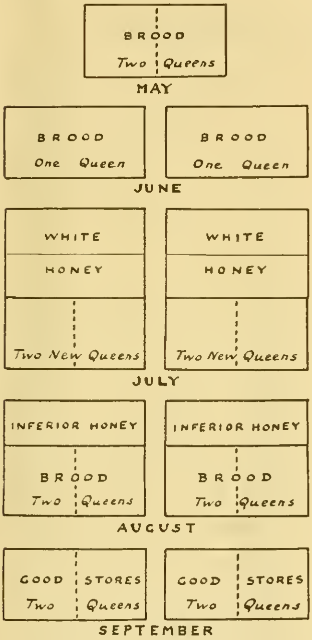
With only one queen in the hive, should early swarming take place, there is the serious interruption in breeding caused by the swarming and the time taken for the old queen to get into full laying again and the young queen to get mated and attain full laying. Should swarming be prevented, the queen soon reaches the limit of fecundity, and before long the number of bees produced daily ceases to increase.

On the other hand, with two queens in the hive, separated by a double wire cloth division, if one of these with her bees is removed to an adjacent empty hive a few days before the swarming season begins, there will be a steadily accelerating production of young bees, provided it is not checked by a honey dearth, a condition that can be remedied by slow feeding.

From a hive of bees containing two queens wintered at Ottawa in 1917-18, that covered 5½ combs on April 25, 480 pounds of honey were produced, while an average of only 223 pounds each was produced in two colonies of equal strength then, that contained only one queen. However, as only one and two colonies were compared, and as one-half of the bees that produced the large return were fed during a part of the honey dearth in June, and the other half consisted of hybrids, these figures cannot be regarded as conclusive. Yet there is every indication that the gain will be great. A satisfactory feature of wintering two queens in a hive and putting one of them with half the bees into another hive during the dandelion flow, is that some of the chief troubles of spring management are thus avoided. Early swarming is prevented, and the inferior dandelion honey is turned into bees.

These considerations have formed the starting point of a system which was evolved and tested last summer, for getting the two queens established in the hive and also for the prevention of swarming without much labor, which is one of the great problems in northern apiaries. This system, which consists essentially in removing the old queen from the brood-chamber during the early part of the main honey-flow, while two others are raised and mated there, the wire-cloth screen being again inserted and a special portico placed in front of the hive to prevent the young queens from meeting or entering one another's sides after the mating flights, has brought other advantages in its train: the annual requeening, the raising of a greater number of young bees in August for wintering than in a colony having only one queen; and last but not least, the removal from the brood-chamber by the bees, to make room for this brood, of a great deal of honey, more or less unwholesome for wintering, so that its place can be filled with a wholesome mixture of sugar syrup and clover honey fed to the bees as soon as breeding has ceased. A colony wintered well on this mixture is 1917-18. In the writer's opinion, unwholesome stores is one of the greatest and most difficult-to-remedy causes of winter loss in many parts of Canada.

This system is so different from the ordinary methods of beekeeping that it cannot be recommended, unless after extensive trial it proves successful. All that can be said at present is that, after a small and necessarily somewhat imperfect trial, it has proved to be workable and looks promising.



Sladen's experimental plan with two queens in one hive

During the clover honey-flow in 1918, thirteen colonies had their queens removed from the brood-chamber and eight days later all queen-cells were cut out except two, one on each side of the double wire-cloth division then inserted, or two special cells were substituted. In six of these colonies fertile queens and worker brood were found on both sides of the division in early August and in six more on one side only. No swarming took place, although nearly all the other colonies in the apiary repeatedly built cells in preparation for swarming.

It was decided that a good way to make good the failures, was to introduce with her brood in early August, when the white honey was removed and the super for dark honey was placed on the hive, a selected old queen, which, after her removal from the brood-chamber at the commencement of the honey-flow, had been caged for eight days in the super, and had then been placed in a weak nucleus specially made for her, with one of the combs containing a little brood and a few bees from her colony.

Heretofore the only successful method of swarm prevention at Ottawa has been the finding and cutting out of all queen-cells, entailing the lifting off and on of supers, frequently heavy with honey, every week, sometimes oftener, during the nine weeks the swarming season lasts, which is a great labor. If the above method of preventing swarming, which requires only two or three easy manipulations, proves to be a success on a large scale, as it has already done on a small one, its adoption will be justified, even though, under some conditions, it may inhibit slightly the production of honey, because it leaves the beekeeper free to manage a much larger number of colonies, and it forms a part of a system, several features of which are calculated to considerably increase honey production.

The system constitutes a good control measure for European foulbrood, and the annual requeening will eliminate losses from old and worn-out queens that figure high in many apiaries.

Details of the experiments with this system were given in the "Canadian Horticulturist and Beekeeper" for October, 1918. Ottawa, Ont.

## Honey From Tobacco

Located as we are, in the heart of the Florida shaded tobacco section, we have had some little experience with tobacco as a honey plant. Twice in five years we have had a flow from that source. First in 1915 and another, and heavier, the past season. Growers usually cut tobacco stalks immediately after harvesting the crop, and for that reason we have had only the two flows, and are unable to say how long or heavy they would be if stalks were left standing. Harvesting tobacco is usually over by the middle of July, and because of the scarcity of labor the past season stalks were left standing for a week or ten days longer than usual, and during this time we got a surplus.

The honey is of heavy body, in fact very heavy and dark, almost like "Blackstrap" molasses. It has never granulated with us, though it might in a cooler climate.

I cannot describe the flavor, but you tupelo and clover producers need not be alarmed. We do not claim it to be better—nor do we expect to take your "fancy trade" with it. A mixture of "Star Navy" and "Brown's Mule" chewing tobacco will give you some idea of the flavor.

J. T. DE LACY, Havana, Fla.

AMERICAN BEE JOURNAL
Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF
C. P. Dadant ........ Editor
Frank C. Pellett ........ Associate Editor
C. C. Miller ........ Questions Department
Maurice G. Dadant ........ Business Manager

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

### Cost of Honey From Package Bees

The Iowa College of Agriculture is conducting some interesting experiments in apiculture, under Prof. Wallace Parks. The past season careful weights were made to ascertain the cost of wintering over colonies and the surplus secured was compared to that secured from package bees from the South. One, two and three-pound packages were used in the experiment. The costs of honey secured are interesting and while a single season does not give any very satisfactory data it is clear that unless better results can be shown in favor of the packages, that it will not pay to destroy our bees in the fall of the year and depend upon replacing them from the south the following spring. Under this experiment the costs per pound of honey stored was as follows:

| | |
|---|---|
| 1-pound package | $ .28 |
| 2-pound package | .13— |
| 3-pound package | .13+ |
| Wintered colonies | .08 |

The difference in cost between the two and three-pound package is so slight as to be surprising, and this in the face of a poor season. It would be expected that the difference would favor the larger package, especially in a poor year. We understand that the experiment will be continued, and results will be watched with interest. The one-pound package is too small for immediate results, and little more than the establishment of a colony can be expected from a single pound of bees, unless it be an exceptional season.

### Honey Plants

We are publishing in this issue some interesting letters concerning the climbing milkweed or shoestring vine. This plant is of limited distribution and is not generally known, yet it is a very important honey plant in the region where it grows. W. L. Wiley, of Brunswick, Mo., writes that it furnished most of the surplus in that locality last year and that strong colonies stored 100 pounds or more from this source.

There are dozens of good plants which are not widely distributed and consequently little known. We will be very glad if our readers will cooperate with us in making a survey of the honey plants of the entire country. Whenever the bees are found to be working freely on a plant which is not generally discussed, we will appreciate samples of the plant, together with the blossoms and full notes concerning the amount and kind of honey secured, time of blooming and any other interesting information. We have been at work for the past three years on a volume of the honey plants and such information will be of great help to us. It is only through the co-operation of the beekeepers of the whole country that we can hope to make the volume complete enough to be of real value. Much has been written about alfalfa, sweet clover, basswood, the sages and a few others of great importance, but we are anxious to get information on the plants which are important in a few localities and which are seldom heard of elsewhere.

In our last issue, and again in this, are several letters about the corn plant which serve to throw some light on the question as to whether bees get honey from corn. Although our success depends upon the honey-plants of our immediate locality, less is known about the problems of nectar secretion than any other phase of beekeeping. We feel that matter of this kind should be of much interest and value to our readers.

### Shallow Brood-frames

In the discussion of the proper size for brood-chambers that will accommodate the most prolific queens, the matter of shallow stories is drawing the attention of a large number of critics. One man writes that the locating of the brood-nest in one, two or more separate bodies, has no influence whatever upon the amount of brood that the queen will produce. I am quite willing to agree that there is a possible difference in the experience of different apiarists on this subject, as mentioned on page 50 of the February number. But that the separation of the brood-chamber into two or more stories should make no difference whatever in the laying of the queen, is an untenable proposition.

Those of the readers who have the revised edition of "The Hive and Honeybee" are requested to turn to page 143, Fig. 59. Those who have only one of the original Langstroth editions are requested to look up Plate 1, Figs. 1 and 2, where the same cuts are found. They will there see that Mr. Langstroth at one time used frames with a perpendicular bar or partition in the middle. This bar had a groove in it which was intended for a "winter passage." As we tried nearly every invention Mr. Langstroth ever described, we also tried these perpendicular divisions and found that the queens would often breed on one side of them only.

The senior Dadant, who estimated the value of pieces of worker-comb very highly, was in the habit, before the invention of comb-foundation made broken worker-comb less valuable, of making horizontal partitions in brood-frames, in order to more readily fasten in pieces of worker-comb as small as 5 inches square. Often the queens would lay on the upper or lower side of such partitions to the exclusion of the other side. We also used divisible frames for making nuclei in queen-breeding. The same trouble exhibited itself. Anyone who cares to do so may try such experiments. Not in every case, but in many cases, perhaps one-fourth of the time, the queens would find such divisions an obstacle sufficient to cause them to turn away, for the time being, though they usually came back to them afterwards.

What, then, must it be when they have, not only a bar, but two bars and a beespace to pass over before changing from one story to another? It is true that they finally do it. But how much time is lost in hesitating and hunting can hardly be guessed.

There is a great deal of method in the queen's laying. To convince ourselves of this, it is only necessary to look at combs of brood. The older brood is usually in the center, the younger brood around the edges. The queen evidently goes around a circle and thus loses but little time looking for cells that are empty and ready. Otherwise how could she lay from 3,000 to 4,000 eggs in 24 hours? When, in the course of her laying, she gets to a wooden bar, she is directed out of her set path and evidently requires a little time to find the thread of her laying again. As often as this happens there is delay. That is why all those obstructions have been almost invariably set aside by practical men and often by the leaders themselves, who invented them. That is why so many people object to the Danzenbaker hive after using it. For the same reason, if the queen happens to locate herself in an upper story, there will be more or less difficulty in getting her back to the lower story, unless she is driven down.

There are advantages to shallow brood stories, else no one would ever adopt them. But there is no doubt that they interfere, more or less, with the full laying of the queens. This very objection to shallow stories, for brood, becomes an advantage when we consider them for surplus receptables. If the queens happen to go into them they will dislike them for the very reasons given above.

### The Ithaca Short Course

On page 60, February number, we inserted the program of this Short Course organized, like that of California, by the United States Apiary Department, through Messrs. Phillips and Demuth, at the College of Agriculture of Cornell. It will be noticed that I was booked, in this course, for an address on "The Dadant System." This subject was not of my choosing, and I would have considered it vain on my part to make the attempt of going to New York State, where so many eminent beekeepers live, and preach the "Dadant System." But as my name was thus put forward by Dr. Phillips, in connection with our methods, there was nothing to do but go there and show, to the best of my ability, why and how we adopted large hives and an economical method of management.

There do not appear to be any better or more efficient teachers of good methods than Messrs. Phillips and Demuth, aided by such men as Dr. Rea and the list of beekeepers which were booked for the course. Everything that these men advance has passed the test of experience, sustained by sound reasoning and thorough acquaintance with the habits of bees.

I expected to find some opposition to the idea of large hives. I found nothing but concurrent statements and arguments. In fact, the train of discussion and statements led in the direction that I followed myself. So I could not speak to a better prepared audience, and was listened to very attentively.

Many influential and capable leaders in beekeeping of the East and Canada were present.

After leaving the pretty city of Ithaca and its college located in one of the most picturesque spots in the country, I had the pleasure to visit both of the Greiner brothers, long known as careful contributors of the American Bee Journal and whose portraits were given in our June, 1918, number. I also called upon Messrs. Taylor, of Newark, and Adams & Myers, of Ransomville, all practical men. On the way, through the zeal of Mr. Taylor, I had two bee conventions with a few beekeepers who kindly called upon me, during my stop at Rochester and at G. C. Greiner's home. Thanks, gentlemen, for this attention and courtesy. I certainly wish to speak of these visits more at length, but space forbids now.

At Ithaca I took a few notes of salient statements made by the leaders who spoke:

"Young bees that have never had a flight do not winter well, because their intestines are loaded with residues from their transformations from the larval and chrysalis states, which must be voided within a week or two after birth." This tallies with our experience in importing bees. The Italian shippers, at our request, tried, many years ago, the sending of queens, with freshly hatched young bees, with very old field workers and with young and active field workers. Success was altogether with the last mentioned, the worst being the young bees that had never flown. Bees that are imported from Italy are never less than 2 weeks in confinement, oftener 3 weeks or more, and the vitality of the workers is important.

"Shall we use tartaric acid in the syrup fed to bees, to secure a change from its sugar condition and prevent a hard crystallization?" It was shown that an ounce of this acid to 15 pounds of sugar would effectually prevent any crystallization. The change from cane sugar to grape sugar is fairly brought about in the stomach of the bees, if they have a sufficient length of time to work it over. The few instances of crystallization of sugar syrup fed were evidently due to too rapid storage.

Demuth's experiments show that bees can carry a third of their weight in honey readily.

Another experiment of Demuth was on the number of trips that a bee makes to the field in a day. I was astounded to hear that the average worker makes only 4 trips. I hope further tests will be made, in the time of a bouncing honey crop.

Demuth recommends to put on supers in number sufficient to permit the evaporation of the nectar and not just for storage only. He calls attention to the fact, well-known among beekeepers, that bees arriving from the fields place their honey in any vacant cell at hand and that this honey is afterwards re-handled by the young bees, thus ripening it. If there is more room than enough there will be a greater scattering of the nectar harvested and a consequently greater ease of ripening. This is sound sense.

"It is important to shelter the underside of the hives, as well as the sides and the top, in outdoor wintering." Evidently correct. The cold reaches the bees as well from the bottom as from the sides. We forget this too often.

"If the honey crop is delayed when the bees are ready for it, it may be advisable to make increase." This, of course, must be left to the judgment of every beekeeper, and he must be guided by the floral conditions, remembering that it takes about 35 days for bees to develop, from the day the egg is laid, to the active field worker. "We must rear our bees **for** the honey crop, not **on** the honey crop."—Demuth.

"A ten-frame Langstroth hive is too small for prolific queens." This seems to be now universally granted. —C. P. D.

# A CALIFORNIA PIONEER

## The Interesting Career of J. S. Harbison, the First Commercial Honey Producer on the Pacific Coast

BY FRANK C. PELLETT

IN the days of forty-nine and the early fifties, California was the goal of many adventurous spirits. The discovery of gold was the cause of great excitement on the coast, and hundreds of men made the long journey from the east. Some went by way of Cape Horn, while others crossed the Isthmus of Panama on foot. The writer has always found particular interest in the events of those stirring times, since a maternal grandfather was one of the number who early went to the golden west in search of the fortune which had so long eluded him. Having heard as a child so many wonderful tales of hardship and adventure, of sudden riches and sudden death, of beans at one dollar per pound and flour at fifty dollars a sack, of Indians eating grasshoppers and white men eaten by grizzly bears, the scenes of these events held a particular fascination for me.

While Harbison did not take the first bees to California, he was the first man to develop beekeeping as a commercial venture, and the first to take any considerable number of bees. It was a serious unertaking to transport bees to California in those days. There were no railroads, and it was necessary to keep the bees confined for a long period of time. It seems surprising that it was possible to take full colonies of bees for such a long journey and get them through alive.

The total distance traveled was nearly six thousand miles. It must be remembered that there were no railroads crossing the continent in those days. The bees were shipped by sea from the Atlantic coast to the Isthmus of Panama, freighted across the isthmus, and then came another long voyage to San Francisco and then up the Sacramento river. Mr. Harbison estimated the journey at 5,900 miles. Before going to California, Harbison had created something of a stir by selling the great total of a ton of honey, the product of his apiary at New Castle, Pa. At that time beekeeping was in its infancy and 2,000 pounds of honey was regarded as an enormous crop. According to reports, this achievement led many farmers in the east to embark in the business of honey production with more or less disastrous results. This was before the days of movable frame hives and beekeeping was more or less of an uncertain proposition. Between the disappointment of winter losses among his bees and the lure of the gold excitement in the west, Harbison decided to investigate the possibilities of California, and reached that State in 1854. The first shipment of bees, according to "Rambler," who gave an extended account of our subject in Gleanings, was made to California in 1853, with only one colony arriving alive.

In 1857 Mr. Harbison returned to the east and prepared 67 colonies from his own apiary in Pennsylvania, for the long journey to the Pacific Coast. The fact that he only lost five colonies on the journey bears evidence of his skill as a practical beekeeper. Another remarkable fact we learn that on his arrival, notwithstanding that bees were worth $100 a colony, he united his weak colonies so as to make all colonies strong enough. This was undoubtedly good beekeeping, but in the face of such high prices the temptation would be strong to sell the weak colonies, or at least to keep them in the hope of building them up. After the one successful trip, he went again and brought larger shipments. Of his various importations, he sold 240 colonies at $100 per colony. Others were encouraged by his success to embark in the same kind of enterprise, and in the fall of 1858, more than a thousand colonies were shipped, but in the hands of less skillful men, the venture was not successful, and less than 200 reached their destination alive.

While on his trip east, Harbison learned of Langstroth's invention of the movable frame. While he did not approve of the hive entirely, he was doubtless influenced to make some changes in his practice as a result of it, and made what came to be known as the Harbison hive. This hive came into general use in California, but is now seldom found.

To him, also, belongs the credit of inventing the section for comb honey. According to his own statement, he conceived the idea and made the first section during the last week of December, 1857, at Suttervile, Sacramento County, California. The sections used by Harbison held two pounds of comb honey, and in the fall of 1858 he exhibited 500 pounds of section honey at the State Fair, held at Maryville. The section was afterward modified to hold only one pound, but came into almost universal use for many years.

The Sacramento Valley did not long hold attraction for Harbison, and in 1869 he went to San Diego county, where in partnership with R. G. Clark, he embarked upon the business of honey production on a big scale. The mild climate of San Diego county is very favorable to the bees and in seasons when nectar secretion is at its best, phenomenal results are secured. During the recent short course several of the beekeepers told the writer of their experiences with making increase. Miss I. Asbec in one season increased from 5 colonies to 67 by natural swarming. The bees began swarming in February This was about 17 years ago. In 1914 Mr. J. H. Evans increased from 5 colonies to 90 by making artificial increase, and, in addition, secured a ton of honey.

It is not surprising that an expert beekeeper like Harbison, under such favorable conditions, should produce honey on such a scale as to attract the attention of the whole country. Mr. G. M. Hawley, of La Mesa, who was a friend of Harbison's for many years, informed the writer that there were 75 swarms in one day, at one of the apiaries in El Cajon mountain. Mr. R. G. Clark was in charge. With such excessive swarming, the surplus

The road through Harbison Canyon. Mr. Hawley in foreground was undoubtedly reduced, but the amounts secured were large. In the American Bee Journal for October 5, 1889, Harbison gave an account of the invention of the section and of his shipments of comb honey to the eastern markets. In 1873 he shipped his first carload of section honey to Chicago. It was probably the first time so large a shipment had reached that market from one producer. This shipment, followed by others the next year, introduced the section to eastern beekeepers.

In 1876 Harbison shipped ten carloads at one time to New York. This was sufficient to attract the attention of the general public, and the New York Sun had an extended interview with the honey man from the west. M. H. Mendleson, of New York State, a young man much interested in beekeeping, saw this trainload of honey and was attracted to the possibilities of California for beekeeping. The big shipment of fine comb honey was sufficient to send him westward, where he has lived for many years and has, himself, become one of the best known and largest producers. The Harbison shipment totaled one hundred tons, and Mendleson has since produced a crop equal to that figure.

The interview in the New York Sun is an interesting account of the Harbison shipment and of his experiences in its production. He is credited with saying that he would not clear to exceed one thousand dollars for the entire shipment, after deducting expenses and interest on his investment. He employed fifteen men and found it necessary to move his equipment and product over rough mountain trails for many miles, thus making production and marketing extremely expensive.

When, during the San Diego short course, a trip was proposed to the site of the principal Harbison apiary in Harbison canyon, 20 miles east of San Diego, the invitation was eagerly accepted. Mr. W. H. Wineland, County Farm Advisor; G. M. Hawley, a local beekeeper; Dr. E. F. Phillips, E. R. Root and the writer composed the party. For most of the distance the roads are perfect, and we spun along over the finest paving. The road into the canyon, however, was rough and at times almost impassable. We found the surroundings much as they had been when Harbison lived there among his bees, except that all traces of his habitation have disappeared. Mr. Hawley is authority for the statement that at times he had as high as five hundred colonies in one yard and probably 3,000 colonies altogether. Our cover lustration is a picture of the mountain rising behind the site of the former Harbison home in the canyon. There is an abundance of white sage, black sage, summer buckwheat and wild alfalfa, all good sources of surplus. It seemed a little disappointing not to find any bees in this historic spot. Surely some beekeeper should find it an advantageous location even now.

As we viewed the great mountain rising behind the site of the former Harbison home, it was suggested that this should be Harbison mountain. Mr. Wineland volunteered to look the matter up and ascertain whether it had ever been officially named, and if not to convey to the authorities the wish of the entire party that it be named after the famous beeman who lived and labored beside it for so many years. We have since been informed that the mountain had not been previously named and that the authorities have seen fit to act on the suggestion and call it "Harbison Mountain." The canyon had long been known as Harbison Canyon.

## About Inspection

I NOTICE what is said about foulbrood laws in the February number and also what is said about the Texas law in the January number. I would not advocate such a stringent law as Texas has, but unless we have something that will compel careless beekeepers to clean up, the law is largely a dead letter. I think we should have an inspector and deputies where needed and when disease is found, for the inspectors to clean up, or see that it is done. Many will not try, and many do not succeed when they do try. For an inspector to find disease and leave instructions and then go away with nothing done, does no good at all. I do not think there are 10 per cent of the number of bees in our county there were before foulbrood got a start, and I think this is true in a great many other places in our State.

J. W. ROUSE, Mexico, Mo.

The fortunate thing about foulbrood is that it does not put **good** beekeepers out of business. It is very inconvenient, causes some trouble and expense and a lot of annoyance. However, expert attention makes it possible to keep the disease under control and at the same time harvest some honey. This being the case, the problem resolves itself into making good beekeepers wherever the disease is present. Many very successful beekeepers date their success from the time when they began to fight foulbrood, and in some cases both American and European foulbrood are present. The writer could name some of the most successful beekeepers who make a business of harvesting big crops who are constantly fighting both diseases.

The fact of the matter is that in localities where principal stress has been paid to police power the beekeeping has declined, whereas in States where more attention has been given to education by the inspection force it has been built up in spite of the presence of disease. The fact that the business has improved in the face of disease, where educational methods are in operation, and has not done so by the police method, is a very good argument against the continuance of the old plan. In most of the States the tendency has been more and more toward educational methods for some time, and some States are abandoning quarantine methods entirely. While there should be sufficient law to prevent a man from continuing to expose his neighbors' bees to disease, needlessly, there is no justification in continuing the general practice of quarantine methods after a disease has become so generally diffused that there is no longer any hope of eradicating it entirely. Since educational methods have proved most effective, while at the same time accomplishing far more for less money, the interests of the beekeeper can apparently be better served by extending the new plan.—F. C. P.

## Bluevine or Climbing Milkweed

(Also called Anglepod or Shoestring Vine.)

By E. A. Ragland.

YOU wanted to know about this vine and its nature. Well, I will say it comes up early in the spring a long, straight shoot at first and when it is about 2 feet high two

A group of beekeepers at the site of Harbison's former home leaves something like a sweet potato plant come on at each joint. The joints and leaves are about 6 inches apart. It seems to grow best on low lands, but will grow on high hill land. It will run as far as 60 feet on wire fences. I noticed one on a guy wire to a telegraph pole that was at least 40 feet high. It begins blooming about the first of July and blooms until about the tenth of September. However, the bees do not pay any attention to it until about the latter part of July or the first of August. From then on, as long as the blossoms last, the bees hum after it. There are one or two clusters at each joint, something like basswood. The blooms are small, white, and range from 15 to 250 in a cluster. The vine is very small, about the size of a baling wire, and about as tough. This plant seems to do best dry years. The honey is about the color of Colorado alfalfa, but seldom seems to granulate, and has a very fine flavor. Nothing equals it, in my opinion. The seed pods begin forming in August and stay green until in November. The pods are almost like those of the milkweed. The seeds are also. They have a kind of cotton on one end. As soon as the pods are dry they split open and the seeds blow out and fly for miles. I have seen them 200 feet high. They remind me of cobwebs late in October.

Dr. Phillips, of Washington, D. C., was here last May and I was telling him about the plant. He said it produced carloads of honey in southern Indiana. There was a cornfield here of 1,200 acres and I don't think there was a stalk that did not have a shoestring vine on it. Dr. Phillips said they called it shoestring vine in Indiana, but he did not know the botanical name for it. I will enclose a small seed pod and a piece of vine. If you can figure out a name for it please let me know, and if it is so you can come over in August you can then see just what the bees think of it. You can smell the sweet odor for half a mile when the wind is just right. Brunswick, Mo.

(Dr. L. H. Pammel identifies the plant as *Genolubus Laevis.* It is common in Southern Illinois, Indiana and Ohio, where it is a persistent and troublesome weed. It also occurs in a few localities in Southern Iowa. We have numerous reports of this plant as an important source of surplus honey.—F. C. P.)

### More About Shoestring Vine

This plant belongs to the milkweed family and "Bluevine" is only a local name for it. It grows rampant in the river bottoms of Southern Indiana, but does not seem to thrive on upland or thin clay soils.

It is my main stay for a white honey crop in the fall, and the honey excels white clover in beauty and taste. Mr. E. G. Baldwin, of the U. S. Department, has told me that some of the beekeepers in the extreme southern counties report a yield from this vine of 80 pounds in two weeks. I do not doubt this in the least. I just commenced taking this honey off today, October 2, 1918, and it will average 60 pounds per colony in three weeks.

The plant is a pest in the cornfields, as there is no killing it out, and the moment the cultivator stops it begins to climb the cornstalks. It has a string of miniature white flowers all along the vine and keeps blooming as it grows. I have seen it run up the brace wires of the telephone poles for 15 feet. It begins to bloom about August first and seldom lasts more than three weeks.

S. H. BURTON,
Washington, Ind.

## Long Idea Hive with Supers

YOUR discussion on "Deep vs. Langstroth Frames," in the February number of the American Bee Journal, is very interesting, also your comment on the story-and-a-half hive.

What you say of the Danzenbaker hive is true, at least I have found it so. A single Danzenbaker brood-chamber is too small for even an ordinary queen, and I have been compelled to provide two-story brood-chambers for some that I have had.

I found this brood-chamber with its two sets of frames an unmitigated nuisance, and do not intend to use it next season.

I have gradually transferred my bees to Langstroth frames, and I am now building a number of the "Long Idea" hives. These hives are designed to hold thirty-three Langstroth frames and are arranged to take 10-frame hive-bodies as supers. I also intend to use these hive-bodies as winter cases, packing the bees in 10-frame Demuth cases, then placing them in groups of three, using three of the long hive-bodies tiered up for an outer case. I have planned to provide one cluster with an entrance in the end case, facing east; the other two entrances to be in the sides, facing south.

I have decided upon the "Long Idea" hive because it seemed to be the only way to enlarge the brood-chamber without abandoning the frames I now have.

As mine is only a side-line apiary, I am not always at liberty to give my bees the attention they require, such as enlarging the brood-chamber, cutting queen-cells, etc., things which seem necessary when the standard size brood-chamber is used. Do you think that expanding the brood-chamber laterally , as in the case of the "Long Idea" hive, will give results equal to those obtained with your Dadant-Quinby, or the Jumbo brood-frames?

I should like to have you answer this in the next issue of the American Bee Journal.

A. W. LEE, Tarrytown, N. Y.

(Experiences vary, and some people are pleased with things that others dislike. But my personal experience with the "Long Idea" hives was not satisfactory, though I am free to say that I would rather use them than the narrow brood-chambers, such as the 8-frame Langstroth.

The main trouble which I found with the long-idea hives is the ability of the queen to travel all over it and lay her eggs first at one end and then at the other, thus changing the location of the brood-combs. In this way we may find brood in any part of the hive at any time. When we extract there is always trouble in getting a sufficient number of combs free from brood, although the hive may be well stored with surplus.

Another trouble is in removing the honey for extracting. There is no way to exclude the bees as we do when we place a bee escape between super and body. So the combs have to be lifted out and the bees brushed off. This always enhances robbing.

For these reasons, we have discarded the "Long Idea" hive from our apiaries, after several years of trial. —C. P. D.)

(When used with supers as Mr. Lee suggests, I would expect rather satisfactory results from this arrangement. The "Long Idea" hive discussed by the editor was used without a super, thus requiring that frames be lifted from the body for extracting. As Mr. Lee will use it, there need not be much manipulation, since there are only 21 frames in the body. I have seen a similar plan tried with 17 frames and two 8-frame bodies side by side, for supers, with good results.—F. C. P.)

## Marking Queens

By D. Queen

IN your January issue I observe an inquiry in regard to marking queens. Something like four years ago I became interested in this matter, but could find no information as to the method or the means to be used. I finally worked out the details, which proved satisfactory and practicable.

The "paint" is simply shellac dissolved in grain alcohol—preferably white shellac, although not essential. The coloring matter may be orange chrome, red lead, zinc white or any non-corrosive pigment in dry powdered form. Experience gained by experiment will soon show how much coloring pigment to mix with the shellac, also how thick the shellac should be. My outfit was made up of two small vials holding, say one-half ounce, and a small camel hair brush about the size of the lead of a pencil when it needs sharpening. These vials were set into a bit of inch board about 3 inches square. The brush was set through the cork of the shellac bottle a la mucilage, and dipped into the shellac far enough to charge the brush.

I personally object to handling queens, therefore my marking and clipping is done while the queen is upon the comb.

If these operations are done early in the day, while the air is rather cool, I find no difficulty.

This autumn I pinched the head off a marked queen, this being her third season, and still going strong, but not considered dependable for the work of building up in the spring.

Six were marked at the same time, and no effect was noticeable in the behavior of the queen or the bees. This queen was prolific this season and had a strong colony, but it stored a surplus of only 21¼ pounds. I was very enthusiastic at the time about marking queens, but realized that marking does not take the place of the clipping, and I finally decided that it was not worth the trouble.

Practice on drones or workers before attempting queens.

New Jersey.

### Honey From Tobacco

In my first year in Porto Rico I noticed one morning that the bees were bringing in nectar abundantly. I traced the bees about half a mile and found them working in a tobacco field of about an acre or two. On my way I passed lots of tobacco in bloom without seeing a bee working on it. The particular field where the bees were busy had been neglected and was full of grass and weeds and the tobacco plants had suffered, the leaves and blooms hanging down, while in the adjoining fields which were well worked, the plants looked fresh and the flowers stood upright.

HENRY BRENNER, Seguin, Tex.

### Nothing New Under the Sun

In the October issue of the American Bee Journal a feeder is described under the heading "A New Feeder." It is now some 40 years since I designed or invented a similar feeder and gave a description of it in the British Bee Journal. A good thing, but it did not "take on."

A. D. CAMERON,
Druimchruaid, Scotland.

## Does Corn Produce Nectar?

I NOTICE that this subject is now coming in for discussion in the American Bee Journal, and I will offer some thoughts on the subject for what they are worth. I have been keeping bees ever since I was 14 years of age and have always been advised that common Indian corn or maize does not produce nectar. The fact of the matter is the botanical rule holds that all plants that are wind pollinating do not produce nectar, while all the plants that are insect pollinating do. I think that this will hold good as a rule in corn, as it is one of the wind pollinators. My observations show for many years that bees do not work on corn for honey, but do so for pollen. I have seen the bees working on the silks of corn many times, and have good reason to believe that they gather some little sweet substance therefrom at times, but in so slight an amount that it is not worth while to mention. I have seen the bees picking up pollen from the silks of the corn on two occasions, and one year I saw the bees gathering aphide secretions from the corn. I know that this was true from the fact that much of the corn had a goodly amount of aphides (lice) on it. It is my observation that bees do not gather honey from corn to count at all. I must say in this connection that it is easy to believe that bees gather honey from corn, since there are many honey-bearing plants that are producing at the time corn is at its best. As a pollen-producer the corn cannot be excelled, sometimes. During the latter part of June and the first part of July, 1917, I witnessed the greatest collection of pollen from corn that I ever saw. We had a great drought here in Texas at that time and the corn just bunched to tassel. About half of the corn pushed the tassel about half out of the boot and stopped growing suddenly. The tassel was well enough developed to produce pollen, and as the blades of corn formed a funnel around the tassel the pollen fell into this funnel and lay in heaps, sometimes more than an inch deep. At this time there was nothing for the bees to do but gather the pollen, and my bees put in great slabs of this pollen. It was so dry here that all other vegetation had dried up and there was not an ounce of honey in the country, but about ten days later the cotton began to give a faint tinge of honey. These conditions continued until in September, when a few light showers came and a little honey came, so that the bees could gather enough for winter. We thought that these fearfully dry conditions would cease at the end of 1917, but they continued all through 1918, and we had a repetition of the corn conditions of 1917, but had more honey in the cotton, and the bees did better. Neither of these years showed that bees gathered honey from corn.

T. P. ROBINSON, Bartlett, Tex.

### A New Yorker's Observation

I have seen bees on both tassels and silks, and have also seen them

# BEEKEEPERS BY THE WAY

### Migratory Graham

There is no more interesting character on the Pacific Coast than Migratory Graham. Known and feared from the Canadian line to the Mexican border, no man moves more frequently or has a wider beekeeping experience than he. Beginning his career in San Diego County at the age of 15 years, he has kept bees in 32 California counties and in five valleys of Nevada.

Wherever beekeepers congregate one hears tales of the exploits of Migratory Graham. According to his own statement he has shipped 161 cars of bees. When one stops to consider the labor of preparing and shipping a car of bees it seems amazing that one man should live to carry on the shipping of bees on such a scale. This would mean an average of eight cars a year for twenty years.

Graham figures that by frequent moving one can get several crops a year in California. As a typical example of the possibilities in this direction, he suggests building up in spring in the almond belt of Butte or Colusa Counties. From here he would move to the orange in Tulare County, then back to the Sacramento or San Joachim Valley to the domestic seed belt. From here he would move to Northern California for an alfalfa flow, and then south again for Jackass clover.

A famous migratory beekeeper

Graham has had more ups and downs than fall to the lot of the average man who aspires to do things on a large scale. At one time he had 3,000 colonies of bees and the best equipment on the Pacific coast and produced a crop of 240,000 pounds by the practice of migration. From that he has reached the other extreme with neither bees nor equipment, and is now again on the up grade with 600 colonies.

Graham has been freely charged with spreading foulbrood all up and down the coast and has been the target for much violent criticism. Special ordinances have been passed to keep him out of special territory and he has been arrested and fined times almost without number. When the writer enquired how many times he had been arrested for violation of ordinances, he replied that nobody knew.

Neither ordinances or quarantines, fines or imprisonment have been sufficient to keep him from moving, and the beekeepers of a favored locality are often surprised on going out some morning to find a big apiary offering its competition for the honey-flow. However, he seldom remains long in a place, and as soon as the flow is over he leaves as mysteriously as he came.

Migratory Graham is undoubtedly one of the most capable beekeepers of the time, yet his life has been far from a pleasant one. Few men are more adaptable than he is reported to be. It is said that in the days of his prosperity he dressed the part of a gentleman of leisure and would readily have passed for a foreign nobleman with his high hat and cane. In days of adversity he can play the part of a tramp and make himself comfortable with the barest necessities with equal ease. The world may never see his like again.

work on the stalks, sucking the juice from the corn wherever a stalk was broken or cracked, and I always thought that they took the sweet juice from broken stalks and converted the sugar to honey, and I know that my bees gather a large amount of pollen from the corn tassels.

GAROLD PETTYS,
Chase Mills, N. Y.

### A Word From Missouri

I will answer your inquiry in regard to "Do Bees Get Honey From Corn?" I think that I know some thing about that. I was raised in a corn country and have been a keeper of bees for several years. A great many times the honey flow would be short about the time Indian corn would tassel out. I always thought when the Indian corn tasseled out and silked that my bees would be all right; but I was sadly disappointed. By close observations, which I conducted many a morning, I would find my busy little Italians going to and from the hives, working very hard in a near by cornfield; but on examining the hives I would find no nectar and worlds of cream-colored pollen; so that convinced me that they do not get anything off of Indian corn but pollen.

P. J. CRAFT, Liberal, Mo.

### From Georgia

"Do Bees Get Honey From Corn?" You asked the readers to answer the question. My answer is they do not get honey from corn; they do get pollen. I have ten outyards in a rich corn section, big swamp land and rich loam made or covered bottom land, and if it yielded honey I would get some. I do get honey at that time which comes from the buttonwood bush, also from the marsh lily or a marsh flower that blooms at the time that corn is in tassel; it is a low grade of honey. I used to believe that it came from corn, but a search proved that it did not.

W. L. WILDER, Macon, Ga.

### Wisconsin Says No

Replying to your query as to bees gathering honey from corn, will say I believe for the past 40 years I have been as close and careful an observer as anyone, and I have the first time yet to see a bee working on corn silk or any other part of corn excepting the tassel, from which they gather pollen in large quantities.

So sure am I that they do not get honey from it at all, and notwithstanding the reports of bees storing large quantities of honey from corn tassel, I wil pay $1 per pound for a 60-pound can of pure corn tassel honey. Now don't all you corn honey men run and rush in your crop, as you may swamp me.

ELIAS FOX, Union Center, Wis.

### A Word From Texas

The tassel of the corn yields pollen early, and some honey later on. If the weather is favorable for the reproduction of plant lice, we may always expect them to attack the tassel, making the top leaves "sticky" and discolored. I have seen bees pile on the tassel until you could scarcely see anything but the bees gathering this honeydew. The honey thus obtained is dark, but of very fair flavor.—Wm. R. Howard, White Rock, Tex., American Bee Journal, page 225, May, 1880.

## "Springing" Bees

By D. A. Macdonald

MUCH has been written about wintering bees, as the pages of all bee papers, year after year clearly testify. Less, too little space, has been devoted to the subject of "springing" bees. Yet on nothing else does success or failure more strongly depend. With the advent of spring the cares and worries of bees and beekeepers manifest themselves. Hitherto the winter cluster kept warm and dry, with plenty of bees and ample stores, the problem has been a simple one. Henceforward it will become more and more complex, because so many side factors intrude. Happy now are all who did their spring stimulation in autumn, who fed their bees with abundance of stores well matured, well made and well sealed, for they can now fold their hands and feel calmly content. Stores present, a good queen heading the colony, plenty of young bees breeding will go on apace. Early in spring, sometime in February, the brood area will be small, at first only a tiny patch or two on the central frame. No anxiety need be felt as yet, for this is the natural routine of each successive spring in every hive. With March, however, activities develop at a different pace in different localities, depending principally on various altitudes, and different degrees north or south of the Equator. Many side factors arise—the bees, the queen, the quantity and quality of stores, the available supply of pollen, the nearness of the water required, all affect results beneficially or prejudicially.

Here, at the very outset, we find a sharp cleavage of both opinion and practice over this problem of "springing" bees successfully. One set of advocates preaches the doctrine of "let 'em alone," holding that right through the spring months of February, March and April bees are best left to their own devices, and that the prescient little worker bees of the colony know what is for the present best interests and future well-being of the community as a whole. Given, they say, ample stores, 30 to 40 pounds in late September, to be well matured and carefully sealed in early October, left under the care of the bees in a well-made hive, and you have the very best provision and guarantee for bringing each colony safely through not only the winter months, but also the three succeeding months of spring without any outside aid. Not only that, but they contend any interference would be detrimental to the bees. They, in their spirit of forethought, have so arranged their stores and their broodnest that everything is in apple-pie order for even the severest winter and early spring. The beekeeper's meddling, they contend, would not work for good, but evil. Interference from outside would break up the cluster, disturb the quiet and orderly arrangements presciently maintained by the "spirit of the hive," while the agitation produced would prematurely encourage a start in breeding, thus producing young bees untimely, with all the consequential drain in stores, premature search for both heat-forming and flesh-forming food for the nourishment of the young larvæ. The search for water, too, overtaxes the strength and endurance of the diligent workers, and they age before their due time. One of the most earnest advocates of the first system of spring treatment has summarized the whole procedure in the graphic phrase, "millions of honey in our house," and another leading light, still with us, says, "The most satisfactory way of stimulating brood-rearing, for me, is to see that the bees have plenty—yes, more than plenty, abundance—of stores in autumn, and then leave them entirely alone. Queens do their best without the lash."

Those who preach and practice stimulation in spring are fully as confident and enthusiastic in commending and advocating their own special tenets and doctrines. Bees, they contend, want a rousing up in spring, a sort of that shaking up whose beneficial influence is pleaded for by many successful beekeepers in many lands. Therefore, they start in spring to stoke the bees in their desire that they should stoke the queen.

Apiary built up from colony caught in bee-tree. Fred W. Krome, Black River Falls, Wis.

They force the pace, and seek to accelerate the energies and desires of the queen for ovipositing. Jog trot procedure is not for them, even the speed of an express train is too slow, and they wish to hurry on at the rate of an aeroplane. If seasons were always good, if supplies were always available, if queens could last forever, this would be an ideal procedure—perhaps. But seasons are variable, the flow of nectar uncertain, and so checks, hindrances, deterrent influences, intervene, making frequently the last state of the stimulated stock worse than the first. The colony attains the crest of the wave at too early a date, the big battalions reach the maximum before nectar is to be had in anything like a copious flow. If there is any one golden rule in apiculture more valuable than any other it is this: Bees should be at their strongest just when the flow is at its best. The two should synchronize as to time. A week too early or too late may mean that the bees have missed that tide which, taken at the flood, leads on to success.

I am not personally a strong advocate of either of these extremes. I certainly don't belong to the stimulative party, but I would not strongly advise to let the bees severely alone. Rather seek for and find the golden mean between the two extremes. Bees are all the better for the guiding hand of their owners in spring, then perhaps more than at any other season of the year. The iron hand in the velvet glove may be too harsh a simile, the moral suasion which guides and directs without manifesting its presence might be better. Early, very early, discover if the bees are all alive, if stores are holding out, if breeding is in satisfactory progress, if the interior guarantees the community is warm and dry.

Few will dispute that the less agitation created early in the spring, the better it will be for the welfare of the community; but when milder days arrive, when honey is available even in driblets, one can safely expedite matters gently and steadily, both in and out of the hive. Inside a slight scratching or piercing of combcappings, near the brood-nest, occasionally leads the bees to think that they have a supply of easily available stores to keep the queen laying steadily. Outside, a supply of artificial pollen will still further encourage brood-rearing. This works for good and not evil. There is practically little or no sudden rousing of the bees, little disintegrating of the cluster, little disturbance of the brood area. Bees near the bleeding honey quietly transport it to the combs frequented by the nurse bees and they stoke the queen, not unduly, and so bring on brood-rearing.

No hard and fast lines can be laid down. What applies to one man does not apply to another. What applies to one season only partly applies to another. In particular, what applies to one altitude, or degree of latitude, must be modified and varied when applied to another. Herein lies a fertile source for discussion of this thorny subject, the best way of bringing bees safely through early spring.

Banff, Scotland.

## Gassed Soldiers Raising Bees

By J. W. Harting

BEE raising offers to the gassed soldier or the man broken in health from the hardships of trench warfare a profitable occupation. Based on an original gift of 20 hives by the American Red Cross, bee raising as an employment for soldiers recovering from wounds or fever, is being developed in the vicinity of Verdun, where reconstruction is receiving expert consideration. The gift was made to M. Grillon, the sous-prefect of Verdun.

The Friends' unit of the American Red Cross, which is doing this specific work, hopes that in a few months it will have enough bees for everyone who kept bees before the war. The Friends are also helping to run dairy farms, hospital and health exhibits and have put up refugee barracks. They have created communal gardens and are arranging to equip the farmers who are beginning to return to their land. A central base has been established on the farm of La Grange-le-Comte and there is being developed at Vanault-les-Dames, in the Marne section, a stock-raising farm where chickens, rabbits and pigs are being raised and where some sheep, horses and cows are also being kept for future distribution in the Argonne region.

The work of raising bees conforms well to the needs of the man unfit for the heavier agricultural work, and therefore every encouragement is being given the industry by the Red Cross.

Grace Allen in her apiary

## The Dignity of Beekeeping

By Mrs. Armstrong Allen

PEOPLE who live in cities easily acquire habits. (Living there myself, I know.) People who live outside of cities have habits, too, but being quite different, they can scarcely be used to point the same moral or adorn the same tale. The particular habit haunting this particular beekeeper today is characteristic of a large, though possibly decreasing, class in cities and towns. If it is decreasing, the happy change is doubtless due to the war, the one great recent maker and breaker of habits.

Only too long it has been the way of business men to smile at the mention of rural pursuits, country occupations. Some smile broadly, openly, frankly, and often in friendly wise—yet they smile. Others smile ever so slightly, with just their eyes perhaps, or the ends of their lips—maybe only one end—still they smile. While still others, eyes and lips more careful servants, may show no sign at all—yet they, too, smile, inside. Farmers and gardeners, dairymen, poultrymen and beekeepers, have felt this, and resented it, for generations. I remember having heard a man of education and scientific training, a teacher of chemistry, speak of it—Dr. J. S. Ward, for several years our State inspector. "It makes me three-thirds mad," was what he said one day at a beekeepers' meeting, "it actually makes me three-thirds mad to see the look some people get on when I speak of beekeeping." It was that same smile—that same city habit.

Yet, after all, there is nothing more serious back of it all than a superficial misapprehension, a little lack of information. The man who, when beekeeping is mentioned, puts on a look that makes the educated beekeeper three-thirds mad, just does not understand the status of beekeeping. We who do can well afford just to smile back—a different kind of smile. For beekeeping is not a cheap or crude or insignificant thing to do. It is important in the life of the people, and it is dignified. To think that a factory is more important than an apiary, or a manufacturer more dignified than a beekeeper is a mistake. The boasted high efficiency of up-to-date industry is something new, something modern, something smacking of the Nineteenth and Twentieth Centuries. The efficiency of the hive is old, even classic, linking itself with the days of David and Solomon, or Virgil or Aristotle. And to an efficiency like unto that of the hive does the beekeeper himself aspire. The roar of the city is something to hurt both ears and souls. The hum of the hive is of the very stuff of quietness, and peace and poise.

Sometimes it seems as though perhaps the words beekeeper, beekeeping, may be part of the trouble. Perhaps, if we care much for a greater show of respect from those who are steeped in the ways and the phrase of the marketplace, we should be to them always as the moon is to the earth. Show them only one side, and let that be the business side, the side of the honey production. Call yourself a honey producer, and see if that doesn't help. It utterly changes the picture. Say beekeeper to me, for instance, and I see the most charming things—white hives on green grass under the trees, probably in an old orchard. I have even a queer trick of putting a lovable old man into the picture, an old man full of rich philosophies, doing things quietly and a bit leisurely. Of course, that is really absurd, because it has been given me to have a wide enough acquaintance among beekeepers to know that they are not always lovable old men! If one who knows somewhat of the beekeeping world thus unconsciously persists in inaccuracies in a generalized picture, may not our friends of the factory and the countinghouse do the same? Say beekeeper to them, and who knows what they see? Probably they conjure up a mental picture of a few neglected old "gums" presided over by a backwoodsman or a hill billy. So they smile. As we do, also, at that particular picture.

But say honey producer. Immediately I lose my nice old man under the orchard trees, and the man of the marketplace loses his hill billy with the bee gums, and we both see strong, up-to-date, keen, energetic men loading a food commodity into a car. And the man of the marketplace ceases to smile, for here he sees the very qualities to which he bows with respect alertness, good management, hustle, modern methods, success.

But whatever we call ourselves, beekeepers or honey producers, whether people who live in cities smile or salute, we may rest quietly on the realization of the genuine dignity of our work. It is a work that uses hands and brains and hearts. It has brought no problems to add to the increasing complexities of modern industrialism. Labor has no long score, no aching grudge, to settle with us. Bolshevism grows neither from our ranks nor as a reaction against us. And we are producers of a foodstuff of real value. Moreover, no store or bank, not even the boasted sunlight factories, could be made as hygienic as our apiaries. The worthwhile beekeeper keeps them so. It was God made them so, in the beginning. And to the wholesomeness of His air and sun, he added bird song and the beauty of blossoming things and the indescribable charm of the bees themselves—that old charm woven of swift wings and mysterious ways and the most soul-resting sound in the world.

### In My Beeyard

I wish the maddened, saddened world
  Could sit down here with me
And look away across the day
  And see the things I see.
No splendid vista there would show—
Just beehives in a quiet row,
  And the blue beyond the tree.

But Oh, while you're sitting and looking
  Across the hives to the blue,
From somewhere softly stealing
Comes over you the feeling
  Of old dreams coming true.

I wish the tired and tortured world
  Could come from east and west
And hear the bees beneath the trees
  Returning from their quest.
'Twould heal the very soul of them,
The worn and weary whole of them,
  And give them utter rest.

For Oh, while you're listening quiet,
  Beneath the bending trees,
From somewhere softly blowing,
The peace of God comes flowing
  Right through the humming bees.

Nashville, Tenn.

## Texas Inspection Meeting

The Apiary Inspectors of Texas met in College Station on January 24 and 25. This was the second annual meeting held under the new plan of co-ordinating the efforts of the various County Inspectors into an Educational force under the leadership of Mr. F. B. Paddock, State Entomologist.

In the forenoon of Friday, Mr. H. B. Parks, of the Extension Department, outlined the work now being done in educating the box-hive beekeeper of the more backward developed counties to adopt modern methods. The Extension Department and the law enforcement agencies are now working together along the lines of awakening interest and enthusiasm in beekeeping.

Professor S. W. Bilsing outlined the work of his class in beekeeping at the A. & M. College, and at the final meeting of the inspectors demonstrated by a visit to the College apiary, the work of the boys in his class.

More flexible and sensible regulations were adopted covering the shipment of honey from and into quarantined areas. The rigid regulation heretofore in effect had been found unworkable and a form of certificates to accompany future shipments was adopted that will tend to place more responsibility upon the producer himself and awaken him to a realization of the possible dangers of shipping infected honey.

Strong representations were made to the State Legislature now in session looking toward the establishment of State Experimental Apiaries for the study of beekeeping under Texas floral and climatic conditions. Since this meeting a bill has been introduced in the Legislature providing $6,000 for the establishment of these apiaries and for the expenses of maintenance and operation.

, E. G. LESTOURGEON.

Texas Inspectors at College Station

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
**DR. C. C. MILLER, MARENGO, ILL.**
**He does NOT answer bee-keeping questions by mail.**

### Black Beeswax

I have a chunk of beeswax which is as dark as pitch. I have melted it in a sun wax extractor; also have melted it with hot water, but the color remains unchanged. What process is best to refine wax?

ILLINOIS.

Answer.—I do not know, unless you use acid. If there's any better way Editor Dadant will know it.

(You do not say how it was blackened. If it was by the use of a rusty kettle, it will be hard to bring it back to good color. You might succeed by melting it several times in the sun extractor.—Ed.)

### Package Bees

I have recently sent an order for 25 2-lb. packages of bees with queens to be delivered about the 1st to 15th of next June. What would be the best plan for handling these bees? I am using 10-frame Langstroth hives. Could I put in full sheets of foundation and hive them on two or three frames with a division-board, feed them awhile and gradually increase the broodnest and get them built up to full colonies by fall, so as not to require feeding or doubling up for the winter? The yellow sweet clover generally begins blooming here about the 10th to 15th of June, and alfalfa about the 15th to 20th of June, and hay harvest begins the last week in June, sometimes the first week in July, and swarming season the middle of July to 1st of August. I have read your books, but they say very little about handling bees in packages, and most of your increase was made with fully drawn combs, and not with foundation.

WYOMING.

Answer.—Yes, you can do as you propose, putting the bees on three frames of foundation with division-board and gradually enlarging; but if weather is hot it is doubtful if it will be worth while to use the division-board. Neither will it be worth while to feed if the bees get a reasonable amount of honey from the field so that their combs are never without honey. A package of bees with queen is to be treated just as you would treat a swarm, and you will probably find no difficulty in the management. You say I had drawn combs in making increase. Well, foundation would be the same, only the bees will get along a little faster with the comb. So far as you have them to spare it will be well to give combs of honey, giving one to each nucleus, and frames of brood and honey will be still better.

### Finding the Queen

I want Dr. Miller to tell me through the Journal—because I believe others would like to know the same thing—how to find the queen in a hive. I have had bees for five or six years and have found one on one or two occasions, and have been unsuccessful on occasions too numerous to relate.

OKLAHOMA.

Answer.—There's no trick about it, and if you keep on trying to find queens, most likely you will wonder that you ever thought it hard. Use as little smoke as possible, for if you smoke so much as to set the bees running it's all day with finding queens. But smoke enough to keep the bees in subjection. The queen is nearly always on the brood; so lift out the frame or frames at the side until you come to the first frame with brood. When possible, sit with your back to the sun, so you can see better. As you gently lift out the comb keep watch for the queen on the side of the comb next to you, but as soon as the comb is lifted out examine carefully the other side, and then return for another look at the side next you. Continue in this way till you have been over all the combs, and if necessary repeat the whole performance. If you do not find her on the second time going over, you may save time by closing the hive until an hour or more later, or until the next day Handle the combs very gently; a jar is as bad as too much smoke. My assistant is an expert at finding queens, and I've given you her way.

### Transferring—Packing

1. I have three colonies of bees which I purchased late last fall, and as we had a poor flow, did not transfer them, but would like to early this spring. Would it do for me to drum them out of the old hive about first bloom time into another hive, then set the new hive above the old one with a separator between them? Would this hinder brood-raising to any extent?

2. I packed my bees last fall in individual packing cases with about 6 inches of leaves all around, then I put burlap in the bottom of super and filled it with leaves, leaving the hive top off. I filled the packing case on up, this making about 12 inches of packing above the bees. Then I put on the top of the packing case, which is covered with tarred paper. I then bored two 1-inch holes just below the roof for ventilation. The hive sets about 6 inches higher than the bottom of the packing case. I put the opening of the packing case at the bottom and put a slanting chute from the hive entrance to the packing case entrance. Will that help the bees any to keep the dead bees out of their entrances? Packing case entrance is three-eighths by 4 inches. Hive entrance three-eighths by full width.

3. The dead bees seem to come out fine and the bees seem to be doing just fine. We have bad two or three warm days here of late and every hive has taken one day's flight. They looked like they would swarm, they were out so thick, but up till then they have never been out that I know of, and I find very few dead bees at the entrances. Don't you think that would indicate they were doing well?

ILLINOIS.

Answers.—1 I think not.

2. I suspect it would be as well if you had bored only one hole instead of two. That slanting entrance would make it at least a little easier for the bees to keep the dead bees cleared away.

3. You would be hard to please if you were not satisfied with their behavior. Still, you have not reached the time of greatest mortality, your letter being dated January 19. You will probably find that more bees will die in the last month of confinement than in all the previous time. They are evidently wintering well.

### Size of Frames—Packing

1. I am a beginner in beekeeping. I expect to work for extracted honey As all frames in the apiary should be the same size, what hives and what size frames would you advise me to get? Some say the queens will lay more eggs in large frames than in small ones.

2. What size pocket honey extractor would you advise me to get?

3. Can a 9⅛-inch frame be successfully extracted in a 12-inch pocket honey extractor?

4. What is the best to put over the brood-frames, straw mats, oil cloth, or just the cover alone?

5. There is no rye straw around here. Could mats be made out of timothy hay?

6. When do you examine your bees for the first time in spring? Do you examine them at their first flight, or do you wait two or three weeks later?

7. Do you disturb your bees on warm winter days to make them fly?

8. I have often read: Dark honey should not be left in the hive in fall, as it causes dysentery. How about buckwheat honey?

IOWA.

Answers.—1. Some agree with the Dadants that it is better to have extracting frames shallower than the brood-frames. You will do well to have 10-frame dovetailed hives, unless you have the Dadant. Like enough queens may lay at least a little more in large frames.

2. That depends on the size of your extracting-combs. The pockets should be at least large enough to take the frames easily.

3. Yes.

4. As you appear to winter outdoors, you should have straw mats or something to take their place.

5. I'm afraid not. Leaves are excellent for packing.

6. Sometimes on the day they are taken from cellar, but usually not till some warm day a week or more later.

7. No; because I winter in the cellar.

8. Buckwheat honey is good for wintering.

### Insulating Materials

On page 24 of the January issue is an interesting table of the relative insulating value of a few packing materials. Where, in your judgment, would hay and straw, nicely packed, stand in this list?

NEW YORK.

Answer.—I don't know, but should think it would come in between dead air space and corrugated cardboard.

### Swarm Control

1. I have three stands of bees in 10-frame hives. Two stands are blacks and the third I requeened last spring with an Italian queen. I wish to limit them to 4 stands, total, next spring, and intend to let my strongest blacks swarm, but intend to clip the queens of the other two early, and then kill them when they come out to swarm. What better way would you suggest that will give me my objective and still keep the bees happy?. My bees are located on a small town lot.

2. In what way would a change of next season, from normal, influence these plants?

INDIANA.

Answers.—1. When a colony swarms and you kill its queen and then leave it to its own devices, there's hardly anything surer than that it will swarm again in a week or so. You may avoid this if you kill all cells but one.

Perhaps you might like to have all Italians, and this might suit you: Call the Italian A, and the two blacks B and C, and let them stand thus:

A B C

Strengthen A by giving it frames of sealed brood from B and C, with or without adhering bees. That will make A swarm first. When it swarms, set the swarm, which we will call D, in place of A, put A in place of B, and set B on a new stand, thus:

D A C B

In perhaps eight days A should swarm again, when you will put the swarm E in place of A, put A in place of C, and put C close beside B, thus:

D E A BC

When A swarms again, put the swarm F in place of A, and put A close beside B and C, thus:

D E F BCA

A week later kill the queens of B and C, and four or five days later kill all cells in B and C and pile them on A. Thus you have your four colonies with an Italian queen in each.

2. A season might be so poor that the bees would not swarm.

### Drawn Combs for Swarms

1. If, when a colony swarms, a hive full of drawn combs is given, will not the bees immediately fill them with honey and soon crowd the queen very badly?

2. Is there not likely to be another swarm sooner where drawn combs are used?

3. My queens are clipped. I move the old hive to a new stand, replace it with another of full sheets of foundation, yet I have had several cases in each of the past three seasons where the bees have reared more cells and in due time swarmed again. I use the 10-frame double-walled hive. (My spring count of colonies for these seasons has not been above fifteen.) Can you suggest a cause for such actions?

4. The above condition applies to natural swarming when I caught them in the act. The same experience has been true with us when brushing, though several times I have had several colonies all go together, leaving a queen and only a few bees on the old stand, this happening once or twice after the swarm had drawn quite a little comb, and the queens laying.

5. If, in transferring from a box-hive the bees are drummed into a box and emptied into a modern hive with some drawn combs, the box-hive turned upside down and a queen excluder put on it, and then the modern hive above that, making sure, of course, the queen is in the top hive, will the bees rob out the lower hive? All entrances to the lower hive would be stopped of course. If done early in the season, perhaps even before fruit-bloom, if some honey was provided in the drawn-combs, would this not be a reasonably good way of transferring and getting rid of a sticky mess?
VERMONT.

ANSWERS.—1. Honey will be promptly filled into the cells, perhaps in the center of the brood-chamber, but if it gets in the queen's way it will be emptied out again, and unless she is very old the queen will not be restricted in her laying.

2. If you mean another swarm from the old hive, that will not be affected in the least by the combs or the foundation given to the prime swarm. If you mean a swarm from the swarm (what is called a virgin swarm), likely drawn combs would have some tendency to hasten the swarming; but virgin swarms are so rare as to need little consideration.

3. Let me see whether I get you straight. When the swarm issues, you set the swarm on the old stand and at the same time set the old hive on a new stand some distance away. Afterswarms are likely to follow. Try it this way: Set the swarm on the old stand and the old hive close beside it; then, 7 or 8 days later, move the old hive to a new stand some distance away. See if that doesn't turn the trick. You see, in the last case you move the old hive about the time it is ready to send out the first afterswarm; the hive loses its field force, which joins the swarm, and this so weakens and discourages the mother colony that all thought of further swarming is given up.

4. I'm not sure I understand just what does occur. If you'll try again, giving very full particulars, maybe I can help you out, and maybe I can't.

5. I'm not sure just how the thing would turn out. I should expect that in some cases work would be promtly commenced in the upper hives, and in some cases there would be sulking, but work begun sooner or later. In either case the brood in the old hive would be cared for until it hatched, and then the honey might be carried up promptly, but oftener rather slowly.

## Illinois Association

1. What real benefit would I have in joining our Illinois Beekeepers' Association?
2. What are the annual dues?
3. To whom must I write for membership?
ILLINOIS.

ANSWERS.—1. If you should attend one of the meetings of the Association you would not begrudge several times the cost. The wide-awake discussions bring out points of value that might not otherwise be brought out, and some will value equally the opportunity between sessions to meet old acquaintances and to make new ones, coming in close contact with those who are leaders in our pursuit. Whether you attend the meetings or not, you will greatly value the excellent report annually issued to the members, giving full account of proceedings at the meeting, and also a report of the Chicago-Northwestern meeting. It would take too much room to tell of the different things that have been accomplished through associations of beekeepers. No telling what new things may be accomplished through organization which are not likely to be accomplished without it.

2. One dollar.

3. Jas. A. Stone, Farmingdale, Ill., is secretary.

## Swarm Control

Please publish in your journal how Dr. Miller checks bees from swarming; for running to comb honey.
NEW YORK.

ANSWERS.—Particulars of all I have done in the way of trying to prevent swarming would more than fill this journal. The gist of it is that when you find queen-cells started you must kill them and make the colony queenless for 10 days. If you cage the queen in the hive for 10 days, the colony may need to be treated again, but if you remove the queen and at the end of 10 days introduce a young laying queen there will be no more swarming that year.

## Dadant-Langstroth Hives

1. Will not the queen lay more in the Dadant or Jumbo than in the Langstroth, and more in the Langstroth than in the divisible brood-chamber hive?

2. I see that the Dadants obtained 125,000 pounds of extracted honey from 500 hives and that Atwater, of Idaho, realized 100,000 pounds from 1,000 hives of the Langstroth pattern. If the pasturage in both localities is the same, as no doubt it is, is not this a solid argument in favor of the deep frame for the extracted honey production?

3. Will not the use of frames in a hive help to keep the bees from swarming and also tend to increase the size of the bees?

4. I see that A. C. Miller places the 10-frame hive on the Jumbo for supers. Could this also be done with the Dadant? I am under the impression that the latter is wider, deeper and longer than the Jumbo.
MICHIGAN.

ANSWERS.—1. The larger the hive, the more a queen will lay, so long as the capacity of the hive is less than the capacity of the queen. But when the capacity of the queen is reached, then increasing the size of the hive will not increase the laying of the queen. A queen may lay more in a divisible-chamber hive than in a Dadant if there are enough stories in the former, and if the queen can lay more than the Dadant will hold. A queen will likely lay a little more in a Dadant than in a divisible of exactly the same capacity, but the difference, especially in hot weather, is perhaps less than generally supposed.

2. I am quite inclined to the opinion that the Dadant may be better than the Langstroth, but it is far from being proven by what you say. How do you know the pasturage was the same? How do you know that other conditions and management were the same? To make the argument "solid" you should have a number of each kind of hives, say 50, side by side in the same apiary under the same management.

3. Quite likely swarming will be lessened if nine frames are used in a 10-frame hive and the spacing of the frames from center to center be increased. But it will not increase the size of the bees.

4. A little ingenuity will enable you to adjust together two hives of different size by tacking on strips.

## Moving Bees

1. I have 20 colonies of bees that I wish to move about 175 miles some time in April or May, through a mountainous country, in a wagon. Roads are fairly good. Please give me some suggestions how to proceed.

2. Do you think a screen would be necessary over the top?
UTAH.

ANSWERS.—1. If your frames are not self-spacing fasten them in some way so they cannot shake, if necessary driving a nail into each end of the end-bars, not driving it so deep but what you can easily draw it out. Put the hives on the wagon with the frames running crosswise.

2. If the entrance is large there may be no need of a screen over the top. But if it be only three-eighths of an inch deep, it will be much better to have the top screened. Of course, much depends on whether the weather is warm or cool. If a day unusually warm should come, and the bees show uneasiness, give them a good sprinkling of cold water.

## Shipping Bees

1. I live near Wilmington, N. C. According to "Honey Markets," issued by the government, honey sells for more by the barrel in New York than I can get elsewhere. We have New York steamers on regular runs. I want to sell my honey this way for this season, provided this is the best way. After a year of bitter experience I want to sell on a "sure pay" or "cash with order" basis.

Do you think a New York firm would inspect and pay for honey in Wilmington, N. C.? Can you or anyone else post me a little as to best steps to take? I don't claim to be much up on business details, as I have spent about all of my time "among the bees."

2. Ha! you migratory beekeepers; how about the bee package business? Instead of one man buying and another selling, why not one man or firm start at a southern point and ship his bees to central honey-flows, and then ship again for the flow further north, and then at the end ship far south again? Make nuclei and add shipped bees to them.
NORTH CAROLINA

ANSWERS.—1. In the market quotations in the bee journals are the names of firms that do business in New York and other large markets. Write directly to any of these, and if you have what they want there ought to be no great difficulty in opening negotiations with them.

2. Shipping bees back and forth, as you suggest, has been tried at different times with more or less success, but the success in general has not been sufficient to warrant a continuance for any length of time. The package business is as yet on trial, but at present it looks as if the difficulties are not insurmountable, and that it has a fair prospect of becoming an established business. So there seems little probability of the revival of migratory beekeeping to the detriment of the package business.

## Nucleus Without Queen

1. What do you think about using nine frames in standard 10-frame hives to give bees clustering space? Which do you recommend, ten frames or nine?

2. What do you think about taking three frames of brood and bees without a queen to start a new colony? How and when would you do this?
INDIANA.

ANSWERS.—1. Likely you will do better to use the ten frames. Unless you use a dummy with nine, there will be too much space at the side. But it might be a gain to use the nine and increase the spacing.

2. I wouldn't think of starting with 3 broods without giving a queen or a queen-cell. If you give one of these you can start the nucleus about swarming time.

## Bees in Packages

1. I am thinking of getting a few hives of bees to get used to handling them. I know but very little about bees. I am figuring on getting a few 2-pound packages with queens. Would it be safe to put them in a new hive with only full sheets of foundation in frames?

2. How late in the season would it be safe for a 2-pound package in a new hive for them to get strong enough for winter?
IOWA.

ANSWERS.—1. Yes; although there is some chance of their swarming out. It will be better if you give them a comb with at least a little brood in it.

2. Seasons differ so much that one cannot set a definite date. The first of September might do in some cases, and the first of July might be too late in others. You're not likely to get them any too early.

### Swarming

I have 15 colonies of bees. I want to know in the spring, when I cut the queen-cells out of them if I could put all the capped brood up in the super. Would that be a good idea, to keep them from swarming.

CALIFORNIA.

Answer.—Yes; when you find queen-cells started for swarming, cut them out, put all but one brood in an upper story above a queen-excluder and leave the queen with the one brood below the excluder. That ought to leave very little chance for swarming.

### Old Sections

I left a lot of surplus on my hives last fall, mostly filled with comb partly filled with honey. Would you remove them in the spring and replace with new sections and foundation, or leave them on to be refilled with honey again?

MISSOURI.

Answer.—Any honey in the sections is pretty sure to be candied, and a section with candied honey in it is hardly marketable. Take off the sections and sort out those containing honey, giving back the others.

### Queen Rearing

1. I have my bees in the cellar; will take out as early as possible and use a wire protector for the entrance, which I will remove whenever it is above 60 degrees, then replace it at noon, or shortly after noon, so that no more bees can get out to get chilled by evening cool air; of course, will have a bee-escape placed in the entrance protector in such a way that all bees that happen to be out can get back in O. K., but those that are tempted to go out when it is too late, can't do it. This will be my way to prevent spring dwindling.

2. I have a very fine Italian golden queen from which I want to raise a few queens. I expect to commence feeding as soon as taken out of cellar, to encourage early brood-rearing; then, as soon as she has the chamber pretty well filled, I will take out all but one frame and old queen and put it in a third story, putting empty comb in first and second stories, the third story being so far from the queen they will at once start a lot of queen-cells; then, after about 8 days, as soon as they are sealed, will divide the second story with a tight division-board, third story likewise, and put one or two frames with a good cell on same, in each department; then, after a few days, or nearly time for the new queens to hatch, open entrances out for each division, so the drones can get out, and likewise the queens, to mate. Of course I will have queen-excluders between first and second and second and third brood-chambers. Perhaps the 4 will all mate and return to their divisions; may lose one or two, but in case I do, what is the best method of introducing them into the other hives, by cage, or can I take a frame of brood with queen and adhering bees and after killing the other old queens insert the frame with young queen? Would they accept her this way, say a day or two after the old queen was killed, and they discover that they are queenless? Or would it be best to cage the new queen and introduce as per usual instructions?

OHIO.

Answers.—1. As a special favor to me, I wish you would try your plan on only one colony. Then take the others out of cellar as *late* as possible, leaving them in cellar as long as they are quiet, say until soft maples are in bloom, and don't do anything to keep them from flying out whenever they feel like it.

2. In your locality there is likely to be something in the way of stores to be gathered as soon as bees can fly freely, in which case feeding will not hurry up brood-rearing, and it may do a lot of harm to feed when bees cannot fly. Neither will you find it a successful thing to try to rear queens much before the natural time when bees begin to rear them for swarming. In trying to have queens reared and mated above a laying queen, be prepared to have more failures than successes, unless you do better than I have done.

Your plan of introducing a queen on a frame of her own bees is so certain of success that I wouldn't think it worth while to cage the queen. If you should want to cage the queen, I think you will find there is no danger of injuring her.

### Care of Supers—Returning Bees

1. When you have taken the honey from the extracting supers in the fall, would you advise the replacing of them on the hives in order that the combs might be cleaned out by the bees, before storing them away for the winter?

2. In your oft-repeated method for the prevention of after-swarming would you kindly point out its after effects upon the parent colony (a) as to bee increase, (b) as to honey production?

3. My winter bee shed is some five rods distant from the summer stands, and when I move out the colonies in the spring many of the bees return to their winter quarters. I believe thousands are lost in this manner. Any helpful suggestions to overcome this serious difficulty will be much appreciated.

4. Have you ever known of a person being rendered unconscious for three or four hours after being stung in the neck about three of four times by bees? I should like to know, as a man here had the experience last summer.

BRITISH COLUMBIA.

Answers.—1. Yes, unless you prefer to set them out in the open. In the latter case the bees are more sure to clean them out promptly and entirely.

2. As there are plenty of young bees to take care of all the brood, there should be no less increase of bees. The mother colony loses its field forces when moved, and will store less honey than if not moved. But the swarm will store more.

3. When you have removed the bees, put in the winter shed a hive containing empty combs, in which any returning bees will gather. At evening brush these in front of any hive or hives you like, and return the combs to the shed. You may have to repeat this for several days.

4. I have never known such a case personally, but have read of something of the kind. I think such cases are rare.

### Rearing Queens

1. I wish to raise a few queens, and on reading "Practical Queen Rearing" by F. C. Pellett thought for my purpose and for the present would use the Miller plan; but it says it (the comb) will contain young brood with an outer margin of eggs. Now, I would suppose that outer margin of eggs would be just what the bees need to start feeding for the queens, since the younger the larva the better, but instruction says, trim away with a sharp knife all the outer margin of combs which contain eggs, except perhaps a very few next to the youngest brood. For what reason are the eggs all cut out, or perhaps only a very few left.

2. Is it a sure thing to put this comb for queen-cells in upper story with excluder between it and brood-chamber; where would you put it?

3. In using an excluder for the above purpose, is there any difference (as some claim) between a zinc and wire excluder?

4. Another thing puzzles me. In Doolittle's management of outapiaries he uses Dr. Miller's bottom-board, using the shallow depth (three-eighths deep) for summer and 2 in. depth for winter. In other words, he gives more ventilation in winter than in summer; why?

5. In Alexander's writings on Practical Bee Culture he is asked, what becomes of the drones that are in upper story when excluder is between (them) upper and lower stories? Why could not drones live in upper story as well as young bees, or must bees have egress and ingress every few days? The queen doesn't fly out every few days.

6. I will be thankful if you will state your method of having the queen-cells drawn out; your method is not stated in F. C. Pellett's book, but possibly you use one of the methods mentioned. If placing in upper story would do, with excluder, that would be the simplest plan.

FLORIDA.

Answers.—1. The bees choose for queen-cells larvæ, not eggs, and that margin of eggs is only in the way. It is possible that later, after the eggs have hatched out into larvæ, the bees might use them for queen-cells, but that is not desirable. Another thing is that bees show a decided preference for rearing cells on the *margin* of a comb, and trimming away the eggs gives them the youngest larvæ on such a margin. But there's no law against your leaving the margin untrimmed, if you prefer.

2. No, I would never have queen-cells started over an excluder with a laying queen below. It's not a dead sure thing that any will be started, and if any are started the number is likely to be small. To start the cells I remove the queen from a strong colony, and about a day later put the prepared comb in the center of the hive. The comb is so much to the taste of the bees that they are not likely to start cells on the other combs, and if they do you need not use them.

3. The bees are more likely to start cells over the zinc excluder, because it shuts off communication more fully. But if you lay any kind of a cloth over the wire excluder, still leaving an inch or more at the sides for passage, you will succeed better than with the zinc in getting cells started, or continued after they are started.

4. A deep space under bottom-bars is desirable summer and winter; but in summer the bees will build comb in the deep space, so I invented the Miller reversible bottom-board. But I have not used it for many years, using the 2-inch space summer and winter, and keeping the bees from building down in summer by the use of a bottom-rack, as you will find in "Fifty Years Among the Bees."

5. I don't know enough to tell all about it; but I suppose the queen is built to stand the confinement and drones and workers are not.

6. I think this question is answered in previous answers, and you will find the whole plan very fully given in "Fifty Years Among the Bees."

### Building Up in Spring

I have bees in movable frame (old style) hives. Would you please advise me of the best way to build up this spring in two hives, that is, have a double brood-nest, and have it with the maximum of bees at the beginning of alsike clover? There are thirty-two acres adjacent to my bees. It begins to bloom about the last of June here. Could I split these large brood-nests at finish of clover, supplying extra hive-body to each half and have them build up strong for the fall flow?

LOUISIANA.

Answer.—If you should be so fortunate as to have *all* strong colonies in spring, there is nothing better than to let them do their own building up.. If some of them are weak, you can do a good deal toward helping. Briefly, my plan is something like this: From the strong colonies draw frames of brood with adhering bees, but never leaving in any hive less than four frames of brood. Give these frames of brood and bees to colonies which have less than four frames of brood, giving first not to the weakest but to the strongest of those needing help, leaving the weakest to be helped later on.

A very strong colony divided at the finish of clover flow should build up and store in fall flow. Like enough you might get more honey not to divide; but then you would have the increase.

### Spring Feeding

1. I have eight colonies of bees in 10-frame hives, packed in dry goods boxes for winter. Would I be able to secure a larger crop by feeding sugar in the spring and increasing by the Alexander plan, or holding them at eight colonies?

2. In your book "Fifty Years Among the Bees" you say you don't know whether you have the wisdom to feed properly or not.

What do you mean by that? What are the dangers of spring feeding?

ILLINOIS.

Answers. 1. In your locality you will probably get a larger crop by holding them at eight colonies. If your main yield were in the fall it might be otherwise.

2. If you feed on a raw day it may start the bees to flying out, and so many of them may be chilled and lost that more harm than good will follow. Just exactly when it will do more harm than good is a thing I haven't the wisdom always to tell. If the bees haven't a fair store of honey in the hive, then it is imperative to feed. But the idea that feeding will always increase brood-rearing is a delusion. In my locality—and also in yours—I very much doubt if there is ever a time in the spring when feeding will increase brood-rearing *if* the bees have already abundant stores in the hive. There are localities where early in the season there is an utter lack of stores continued for so long a time that the queen stops laying. In such case feeding is exceedingly advantageous. But in your locality there is never any very long time when at least a little cannot be had from the fields. If your bees are worth keeping you will find that in spring they have all the brood they can cover; then how can feeding help? Unless, indeed, they are short of stores, and then you must feed.

### To Prevent Swarming

1. After using the "putup" plan, is it necessary to make any further effort to destroy queen-cells? About what time in the season do you cease destroying the queen-cells to prevent swarming?

2. If you were using 10-frame hives would you double the brood-chambers as with the 8-frame and then reduce before putting on the supers at the beginning of the clover flow?

3. In using 10-frame hives what objection would there be to omitting one frame to make the manipulation more easy?

INDIANA.

Answers.—1. If the old queen is returned to the hive, there is always a possibility that cells may be started later on. Incidentally I may say that it is not a very uncommon thing for cells to be started immediately on the return of the queen, only to be destroyed by the bees before maturity. There is no fixed date when one can say there is no further need to look for cells. But when the flow begins to wane, or when but few cells are found in any one hive, one is pretty safe in saying that the cells are started for superseding rather than for swarming. In any case, if a young queen of the current season's rearing is given in place of the old queen, no further search is made for cells in that colony.

2. Yes, if needed; but fewer second stories would be needed with the larger hives. For, after all colonies were equalized, not so many of them would be strong enough to need a second story.

3. The objection would be that there would be fewer cells for the queen to use. To offset this would be the advantage that the use of a dummy would make it easier to take out frames. Also, that it would give opportunity to space the frames 1½ inches from center, which some good authorities think would lessen swarming.

### Foulbrood

1. Would it be safe to use the brood-frames after melting American foulbrood out of them?

2. If so, what kind of treatment shall I give them?

3. Would it be necessary to treat the hive bodies?

4. Would it be safe to use foundation after being in a hive that had American foulbrood in, but have not drawn them out? Please answer in the March number if you can.

INDIANA.

Answers.—1 and 2. If, in melting out the combs, the frames were kept at the boiling point for half an hour, it might be safe to use them again without further treatment; although it might be safer still if the frames were baked in an oven afterward, being heated as high as they would stand without charring the wood.

3. Many good authorities think it unnecessary.

4. It would likely be safe.

Let me add a word. If I had the disease in my own apiary I wouldn't hesitate to use all the things mentioned, only it would be a question whether it might not be cheaper to use new frames than to clean up the old ones. But if the disease were not in my apiary, and never had been, I would promptly decline the frames as a gift, and would hesitate about accepting the other things.

### What Kind of Queens?

1. Do you think it would pay to buy an Italian queen for one swarm of bees?

2. Would a queen costing $1 to $1.25 be all right?

3. Would you buy a tested or untested queen?

4. What kind would you buy, three-banded golden, or leather colored?

5. Is Madison county counted a good locality for bees?

6. When would be the best time for the queen to come?

IOWA.

Answers.—1. Most likely. In many cases the difference in one crop of honey would more than pay for the queen, and you would have the advantage continued in future crops. But a queen you buy this year will make more difference in the crop next year than this.

2. Yes; thousands of good queens are sold at those prices.

3. Hard to say. Like enough the untested will turn out as good as the tested; but the tested ought to be a little surer to be good.

4. You'll be pretty safe on a three-banded, leather-colored.

5. I don't know, but I suppose it is. (Some parts very good.—F. C. P.)

6. June is a good time.

### Ants—Roaches

Do roaches do any particular damage to a colony of bees? What is a good method of preventing damage by roaches in a hive of bees?

What is the best method of preventing ants from annoying bees?

ALABAMA.

Answer.—In the North neither ants nor cockroaches do any harm, probably, beyond annoying the bees by their presence, and their presence in the hive can be prevented simply by having no place in the hive that an ant can enter and a bee cannot. Quilts or sheets that allow ants to make their nests where the bees cannot get at them are, consequently, not so good as having covers with a bee-space between top-bars and covers; for if the bees can get into every place where the ants can, the bees can hold their own against the ants. In the South, however, there are ants that may destroy whole colonies of bees. These may be traced to their nests and destroyed by kerosene or carbon disulfide, and the hives may be set on posts with cups containing coal-tar, creosote or petroleum.

### Cross Bees

I have 5 colonies of Italian bees. I bought one hive three years ago and got the rest from swarms. These bees are very cross. They are at least 500 feet from the house; bad to put them there, as I used to have them 100 feet from the house, just to get acquainted with us, but had to move them, being stung so often; and now, while working in 300 feet of the hives in the field they are very bothersome, and while working on the hives they get very bad. I used to have bees for years on a city lot 25x100 feet, which never made any trouble for me or neighbors. Would you advise me to requeen the 5 colonies with a good strain of Italians this spring, or is there any other reason these bees are so cross?

NEW JERSEY.

Answer.—There is nothing better than to requeen with a better-natured strain. But are you sure that all five colonies are equally guilty? It sometimes happens that a single colony is very cross, and unless very close observation is made it will seem that all the bees in the apiary are on the war-path. One way to do is to walk quietly in front of the hives and see whether the bees from a single colony dart out at you, or whether all do it. It is possible, however, that by introducing a good Italian queen into each colony you would gain enough in the harvest to pay more than the cost of making the change.

### Smoker—Disease

1. Which is the proper place to put the grate in a smoker? Some say in the bottom and some on top of the fuel.

2. Is the Tri-State hive as good as the dovetailed?

3. Will you please give the pronunciation of the name "Dadant?" Every beekeeper around here has his own way to pronounce it.

4. Last year there was a disease in the brood of three of my hives. As near as I could tell it was European foulbrood. I wrote Mr. Kildow about it and he said he would send me his Bulletin. I never received it. By that time I noticed it was clearing up a little. They were all right when winter set in. Now what I want to know is will the disease appear in the spring?

5. Was there any nectar in Spanish needle last fall? I never got a drop of honey from it nor white clover either. The honey I got came from catnip and horehound.

ILLINOIS.

Answers.—1. Most smokers are made so that the grate is put in the bottom and the fuel on top of it.

2. It is much the same.

3. The Dadants came from France, and if you heard the name pronounced as it is in French I don't suppose you could repeat it to save your neck. But the whole bunch of Dadants are very much American—100 per cent—and so the name has been Americanized and is pronounced Day-dant, accent on both syllables.

4. It may. If it does, send to Dr. E. F. Phillips, U. S. Department of Agriculture, Washington, D. C., and he will send you a box in which you can send him a sample, and then he will tell you what the trouble is with printed information about it. This will cost you nothing.

5. I cannot tell you.

### Bees on Shares

I am working 300 stands of bees, one-half started in 1918, for two years, each to get half of the proceeds and each to pay half of the expenses. I am to do all the work. When I took the bees we were running for comb honey. This year he has decided to run half for extracting. There is nothing said in the contract about changing. Now is it up to me to do all this work and stand half of the foundation, or is it the owner's place to do that? Hoping this won't be asking too much of you.

CALIFORNIA.

Answer.—Working on shares is a more or less complicated thing, about which I know none too much, so I hardly dare hazard an opinion. Of course, if the change is such as to make it less profitable to you, then there should be some change in the agreement to correspond. But "in this locality" it is considered that it takes less work to produce extracted than section honey. And if you use full sheets of foundation in sections it ought to take less foundation for extracted honey. But there may be something in the case I don't understand.

### Spinning Honey

Is there any method by which honey can be spun, and if so, after the process, what color does it assume, and is this peculiar color due to adulteration or simply to the process it has undergone. I have just been told that they have a process of spinning honey in the south and that after the process the honey becomes white and takes on a pliableness equal to that of lard. Is this true, or have I been misinformed? MICHIGAN.

ANSWER.—Spinning honey is something I never heard of before, and I must confess ignorance. If extracted honey is stirred occasionally as it begins to candy it helps to make it smooth and fine-grained, and what you say at the last may refer to this.

### Granulation of Honey—Decoy Hives

1. I had some extracted honey last fall which I took from the bees in August, and after the weather turned cold it turned to sugar. It was pure honey; no water mixed with it, and it remained sweet. After allowing it to stand in warm water it would receive its natural color and form again. What caused it to turn to sugar? Do you suppose the honey the bees have stored in the brood-frames for winter use has turned to sugar? If so, what effect would it have on the bees?

2. The moths got after my comb honey last fall. They started their destructive work at the bottom of the sections, working upward. What is the best way of storing comb honey to keep the moths out of it?

3. One of my prime swarms that I had last summer came out in the morning and settled on a bush. It did not remain very long, and it went back into the hive. So I thought it would perhaps come out in the afternoon again. So I took a hive with full sheets of foundation in the frames and set it on a step-ladder near the place where the swarm had settled in the morning. In the afternoon the swarm came out again and settled on the cover of the hive which I had on the step-ladder and then crawled into the hive. This gave me an idea of putting empty boxes with an entrance into them and a removable bottom and set them on posts and in trees and try my luck on having swarms go into them. How do you think it will work? ILLINOIS.

ANSWERS.—1. Oh, no; your honey didn't turn to sugar; it was honey still, granulated or candied honey. Under ordinary circumstances you will find your extracted honey will always granulate in the course of a few months, following a law of nature. What the bees have stored in their brood-combs usually does not granulate, and if a little of it does granulate no great harm comes from it.

2. It is easy to store section honey away from moths. Just store it in any room or box with no crack big enough for moths to crawl through. For all that you may find your sections becoming "wormy," for the moths lay eggs in the sections before the sections are taken from the hive. The most important thing to prevent this is to have Italian bees.

(To kill the moths, burn brimstone under the crates of honey a few days after they have been taken from the bees.—Editor.)

3. It will work in a good many cases.

### Bees Dying in Winter

I have lost four colonies so far this winter from no cause that I am able to figure out. They are being wintered outside; hives are banked up and covered with hay, front entrances open. They stood the extreme cold weather of January O. K., and since then the temperature has not been below 20 above zero. The hives are full of honey and when I opened them to look them over I found all the bees dead in clusters. The weather has been unusually warm for this time of season.

Can you tell me, through the columns of the American Bee Journal what is causing them to die, so I can save the balance? There are no moths or foulbrood. IOWA.

ANSWER.—I don't know, and I can't even make any decent guess what the trouble is. If it were in a very cold locality it might be that the bees were stranded on one side of the hive, all stores within reach consumed, and too cold for the bees to reach the stores in the other combs; but from what is said it cannot be cold enough for that. As a forlorn hope, one might guess poison or poisonous stores, in which case matters might be improved to take away the stores and give sugar syrup. But somehow it doesn't look like poison. Queenlessness and death from old age might be suggested, but that would hardly be so much by wholesale.

(We are all puzzled to know what is the matter. Can any reader explain the trouble?—Editor.)

### Queens at Swarming Time

When a swarm comes out with the old queen and is put in a hive and when the same hive casts the second swarm, can I take out the old queen and put in the young queen with the first swarm without introduction? NEW YORK.

ANSWER.—You might do so; but you can go about to have the two swarms together and have the young queen in a different way that you might like better. When the prime swarm issues, take away the old queen and return the swarm. Then a week or so later the young queen will issue with a swarm, which you can set on the old stand and move the old hive to a new stand, and then there will be no more swarming.

## MISCELLANEOUS NEWS ITEMS

### Death of Louis Werner

We regret to announce the death of a beekeeper who was a familiar figure at the Illinois and Chicago meetings, Mr. Louis Werner, of Wood River, Ill. Mr. Werner had many mishaps. He suffered for years from rheumatism. On August 21, 1915, his home and apiary were invaded by a flood and he lost his honey crop and the greater part of his 75 colonies. This was mentioned in the American Bee Journal for November, 1915.

Mr. Werner was 65 years old and leaves a wife, four sons and two daughters. He died February 12. The sympathy of the Bee Journal family is extended to them.

### Introducing Virgins

In the last issue of the American Bee Journal you say that the introduction of virgins has always been a difficult matter to you. Please try this plan: If you remove the laying queen from the mating nucleus, say in the afternoon on Monday, go to the nucleus again on Friday afternoon, destroy the cells, a half hour later push the cover of the nucleus hive a little to the front and let the virgin run in. I have introduced hundreds in this way and don't remember of one failure. The point which must be observed is that the bees receiving the virgin must be at least 4 days queenless. I generally give the virgins when they are less than 24 hours old.

F. W. LUEBECK,
Knox, Ind.

### Herkimer County Organizes

The beekeepers of Herkimer County, N. Y., gathered in the Farm Bureau office January 28. County Agent C. A. Taylor, in a few pointed introductory remarks expressed his desire to aid the beekeepers in every way possible to solve their problems.

Geo. H. Rea, of the United States Bureau of Entomology, spoke on the advantages of organization for the beekeepers. Beekeepers need county associations for the purpose of the control of bee diseases, the co-operative purchase of bee supplies and the sale of bee products. The educational and social side of such meetings should be emphasized, also. After the beekeepers had discussed their problems, such as wintering and bee diseases, they organized the Herkimer County Beekeepers' Association, and the following persons were elected to office:

President—Lewis J. Elwood, Fort Plain, N. Y.

Vice President—Geo. P. Walrath, Ilion, N. Y.

Secretary-Treasurer — C. Gardner, Herkimer, N. Y.

A campaign for membership will be carried on immediately, with the hope that every beekeeper in the county will avail himself of the opportunity to join. The following membership committee was appointed to take charge of the work: Oscar Bronner, Mohawk, N. Y.; Clyde Ransom, Little Falls, N. Y., and George P. Walrath, Ilion, N. Y.

### Extension Work on the Pacific Coast

The extension work in beekeeping is rapidly coming to cover all sections of our country. In the northwest, Ward H. Foster and H. A. Schullen are doing some effective work. In these States little has been done along these lines until recently, and these men should find a fertile field for effort.

### Another Texas County Organized

The Dallas County, Texas, beekeepers have recently organized, with W. E. Joor, President; John R. Hancock, Vice President, and Wm. L. Peacock, Secretary-Treasurer. With so many county organizations co-operating with the State Entomologist, the Texas beekeepers should do some effective work.

### Three-Day Bee Schools in Wisconsin

Wisconsin has long been in the forefront of the beekeeping States, since it was the first to provide state-wide bee inspection. The State University is undertaking some extended work in beekeeping under direction of Prof. H. F. Wilson. Two 3-day bee schools have been held, one in December and the second in February and March.

### Good Short Course

From January 14 to 24 was held the annual winter course in apiculture at the Ontario Agricultural College, Guelph. The 47 men and women students represented three-fourths of the counties of the Province. The enthusiasm shown argues well for the future of the honey industry of Ontario. The course was in charge of Doctor Burton N. Gates, formerly of the Massachusetts Agricultural College, who is now Provincial Api-

arist for Ontario. He was assisted by Mr. W. A. Weir, Mr. Jas. Armstrong and Mr. F. W. L. Sladen, Dominion Apiarist, as well as by the various members of the college staff in the several departments. This was one of the largest short courses in beekeeping ever held at the institution.
GORDON DIXON, Toronto, Ont.

### Tennessee and West Virginia

I had occasion to visit friends in Kentucky in January and took advantage of the opportunity to attend both the Tennessee meeting at Nashville and that of West Virginia at Charleston.

About 50 Tennessee beekeepers attended the Nashville meeting and among them one of the old war horses of beekeeping, John M. Davis, who has been known to readers of the American Bee Journal for over 45 years. I also met one of the winning lady writers on bees, Mrs. Grace Allen, of Nashville, who read a very interesting paper. Mr.G. M. Bentley, the secretary of the State organizations of Fruit Growers, Florists, Nurserymen and Beekeepers, is a live wire and turned out to be a practical apiarist, in spite of his cumulative office. Dr. J. S. Ward, the State Inspector, was abed with the influenza, but he was ably represented by his brother, Porter Ward, who was elected president.

Among those from the North, I met J. C. Allen, of Wisconsin. The Tennessee beekeepers have a growing and interesting association.

At Charleston the meeting was presided over by T. K. Massie, an old, experienced apiarist. Mr. Chas. A. Reese, the State Apiarist, exhibited some moving pictures of apiary work. The State of West Virginia appropriated $10,000 last year to promote apiary work. It was needed, for I was told that the majority of bee owners are still "bee-gum" apiarists. The gum tree, which is usually hollow, is cut down and sawed into lengths of 3 or 4 feet, with a board at each end and a few notches for entrances.

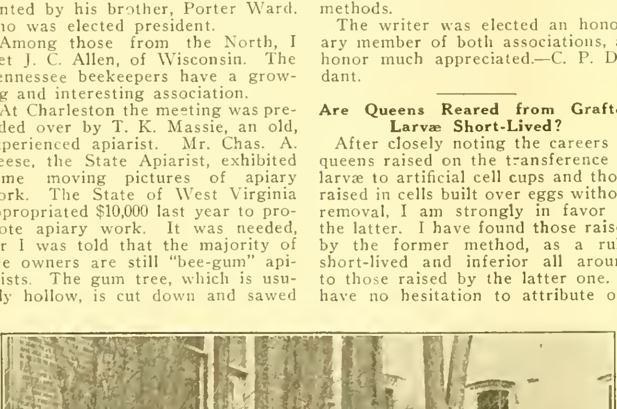
The few beekeepers who met at this convention are all practical men. Messrs. Luzader and Griffith, who live in the north Pan Handle country, gave timely descriptions of the resources of their section. Mr. Griffith is full of jokes and can keep a meeting in a roar of laughter.

For the first time I met a deaf-and-dumb apiarist, Mr. L. O. Simmons, who had a very interesting paper read by the secretary. Here, also, I heard of war cripples taking up beekeeping, and on my way home met a young soldier who lost an arm at Chateau-Thierry and wants to try beekeeping.

West Virginia, from all reports, does not have very special honey-flows. But there are lots of fruit trees, much sumach, some white clover and fall blossoms. The honey I saw was nearly all amber of good flavor.

On the whole, West Virginia appears to have a bright future for honey production, if its Legislature continues to sustain an effort to draw the mountaineer out of the rut of log-gum beekeeping. The gums should disappear with the moonshine and give room for more modern methods.

The writer was elected an honorary member of both associations, an honor much appreciated.—C. P. Dadant.



Group of West Virginia beekeepers—Left to right: Kelley Lance, Homer Mathewson, Will C. Griffith, T. K. Massie, C. P. Dadant, O. D. Lanham, P. L. Jones, L. O. Simmons, R. L Richardson, Grant Luzader.

### Are Queens Reared from Grafted Larvæ Short-Lived?

After closely noting the careers of queens raised on the transference of larvæ to artificial cell cups and those raised in cells built over eggs without removal, I am strongly in favor of the latter. I have found those raised by the former method, as a rule, short-lived and inferior all around to those raised by the latter one. I have no hesitation to attribute our repeated failures to get queens through alive from America during the past fifteen years to that method. In former years, before transferring came into vogue, I could always depend upon getting 50 per cent in good condition, and often all of them.
ISAAC HOPKINS,
Epsom, Aukland, N. Z.

### Getting Rid of Ants

Beekeepers who are troubled with ordinary ants about the beehive will do well to prepare a strong solution of borax or boracic acid and water, to be mixed with some sweet, such as syrup or honey.

This, if used where the ants are found, will soon poison all of them. Care must be taken, however to put the poison in a receptacle so that the bees cannot avail themselves of it, or they too will suffer.
HENRY BEST,
Hibbetts, Ohio.

### More Farm Manuals

The Lippincott series of Farm Manuals, which has been mentioned in our pages before, now numbers 12 volumes. Each volume is written by a recognized authority and the series, as a whole, forms a valuable library of agricultural information. Productive Beekeeping, by our associate editor is one of this series.

Productive Sheep Husbandry, by Prof. Walter C. Coffee, of the University of Illinois, is another valuable volume. There is no more profitable adjunct to the farm than a flock of sheep. This volume opens with an interesting account of the development of the sheep industry since early times. It also contains an extended account of the characteristics of the various breeds, the diseases to which they are subject, methods of profitable management, production of wool, feeding for market, etc. In all it contains 479 pages of indispensable information for the sheep owner.

Injurious Insects and Useful Birds is by F. L. Washburn, also of the University of Minnesota, and for many years State Entomologist. It contains several colored plates showing well-known insects and birds which add much to the volume. Most of the common insects which injure farm and garden crops are described, and may be recognized from the pictures. There are more than 400 illustrations, nearly as many as there are pages in the book.

A work of this kind is useful to every owner of a garden or larger area of cultivated land. Insects are apparently becoming more destructive as the country grows older, and a knowledge of their life history and habits will often save the owner many times the cost of such a book.

These books are all published by the J. B. Lippincott Company, of Philadelphia. The price of the Dairy and Sheep books are $1.75 each, and of the Bird and Insect book, $2. They can be had from the publishers, or from this office, for the prices named.

Group of Beekeepers at the Ithaca, New York Short Course

### Death of Mr. John Thornton

We have word of the death of Mr. John Thornton, of Lima, Ill., a well-known beekeeper and fruit grower of that district. Mr. Thornton was only 58 years old at the time of his death.

### A Series of Short Courses for April

A letter from Doctor Phillips conveys the information that a series of short courses for commercial beekeepers, similar to those held in California and New York, are planned for mid-western States during the month of April. The first is to be held at Purdue University, Lafayette, Ind., from April 7 to 12. The second will be held at Ames, Iowa, at the State College of Agriculture, from April 14 to 19, and the week following at University Farm, St. Paul, Minn., from April 21 to 26, a similar course will be held. The program will be similar to that followed at the California and New York courses, with Doctor Phillips and Mr. Demuth, from the U. S. Department, co-operating with officials of the various universities. Mr. Dadant, from this office, expects to attend the Indiana short course, while Mr. Pellett expects to be present at Iowa.

### The Nebraska Convention

The Nebraska beekeepers met at Lincoln this year in connection with the "Organized Agriculture" meetings at the Agricultural College. The sessions were well attended and the interest very good. Prof. F. E. Millen, Iowa State Apiarist; E. G. Brown, of the Western Honey Producers', and Frank C. Pellett, of our staff, were the speakers from outside the State. H. C. Cook, of Omaha, conducted the question box. Mr. Cook is one of the best known Nebraska beekeepers and has been active in support of a bill which has been introduced in the legislature to provide a State Apiarist, similar to the Iowa officer, who shall be responsible for inspection and for educational work in beekeeping as well. The bill is reported to have failed at this session, but will probably be brought up again later, as the association is anxious to have the beekeeping work firmly established at the university.

The retiring officers are to be congratulated on the success of the first year of the new organization. Mr. Harris, the president; Mr. Olsen, vice president, and Mr. Timm, the secretary, have all been active in the new organization and have reason to be gratified with the success of the first convention. The secretary explained that he would be unable to devote as much time to the work during the coming season as has been required of him, and asked to be relieved.

Rev. R. W. Livers, of Hardy, was elected president and Prof. Myron H. Swenk, of the University, secretary. Prof. Swenk is teaching a course in beekeeping at the college and is much pleased with the interest manifested. We feel sure that Prof. Swenk will extend the work just as rapidly as circumstances will permit. A series of field meetings, to be under the joint supervision of the University and the Association, are planned for the coming summer. These will be held at different points within the State so as to be within reach of as many beekeepers as possible.

### Death of Oscar Dines

We have only lately been apprised of the sudden death in the last days of December, of Oscar Dines, one of the most practical beekeepers of New York State. Mr. Dines kept nearly 300 colonies of bees in one apiary and was one of the happiest beemen we ever knew. He enjoyed nothing better than being among his bees. He died suddenly.

### An Experimental Apiary for Texas

We see by the "Beekeepers Item' that a bill is now pending in Texas which provides for the establishment of experimental apiaries. This is a much to be desired end, and we hope to hear that the bill has been passed and a sufficient appropriation provided. There is much yet to be learned about bees, and many problems can only be worked out properly by State experimental stations, since the individual cannot afford the expenditure necessary to make the exhaustive tests to determine many interesting points.

### Enlarging the Small Hive

When I began beekeeping three years ago my bees were in the 8-frame Langstroth hives. I soon got the tip that my hives were too small for the queens which were in them. I lifted the brood-chamber from the bottom-board and put a shallow extracting super underneath. I find this works fine; the queens filled all the frames in both compartments with brood. I find that putting the half-story under the brood-chamber is better than to put it on top. I have no trouble with queens going into the supers. The bees winter well in these one and a half story hives, outside.

E. E. EVITT, Paris, Ill.

### Paste for Tin

I note on page 62 of the February Journal an enquiry for a paste to stick labels on tin. I have had difficulty with this problem and have tried honey in the paste, with indifferent success. It seems to help on some grades of tin, but is unreliable. The difficulty seems to be in a coating on the tin rather than in the paste, and if the tin is wiped with a cloth wet with muriatic acid it will clean the tin so that ordinary paste will hold.

A. GORDON DYE,
Rochester, N. Y.

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets
### Shipping Point Information

San Francisco: Supplies liberal. Practically no demand or movement, buyers holding off. Cash to producers at country loading points: Extracted: per pound, water white, 18-19c, sage white 18c, light amber 17c, dark amber 14-16c. Beeswax, 36-38c. per pound.

Los Angeles: Cool, cloudy. No demand, practically no movement, no sales reported. Only few cars still in state. Beeswax: few sales. Cash to producer on farm, 38c per pound.

Chicago: No carlot arrivals. Supplies liberal. Demand light, movement limited, prices unsettled. Sales to jobbers, all sections: Extracted, per pound, white 20-24c, amber 18-26c. Comb: 24-section cases, No. 1 mostly $6.50 per case. Beeswax: Refined 45-50c, unrefined, mostly 42c per pound.

Ciicinnati: 1 California extracted arrived, no carlot arrivals of comb, nearby receipts very light. Supplies liberal. Practically no demand, no sales reported. Beeswax: Demand and movement moderate. Average yellow 40c per pound.

Cleveland: Thursday, Feb. 13—Demand slow, prices lower. Sales to bakers and confectioners: Westerns 60-lb. tins sweet clover and orange blossom, 22-26c per pound.

Denver: Approximately 4,000 lbs. extracted arrived. Receipts light. Demand and movement slow. Sales to jobbers: Extracted: white 20-22½c per pound. Beeswax: cash to producer, 38c per pound.

Kansas City: 1 Colorado and approximately 60 cases by freight arrived, 1 broken car on track. Demand and movement moderate. Sales to jobbers, Comb: Missouris, 24-section flat cases No. 1, $7.50-8.00. Colorado No. 1, $7.50. Beeswax: 35 -40c per pound.

Minneapolis: Home-grown receipts light. Supplies moderate. Demand and movement slow, little change in prices. Sales direct to retailer, Comb: 24-section cases, Minnesotas, quality and condition fair, dark color, $6-7. Colorado, fancy white, quality good, condition generally good, mostly $7.50. Extracted: Western, quality and condition generally good, 60-lb. cans, mostly 25c per pound.

New York: Arrivals: 100 barrels Mexico, 2,156 barrels West India. Exported: 2,245 cases, 127 barrels to England, 1,214 cases to Sweden. Demand and movement very slow, very few sales. Sales to jobbers, Extracted: Porto Rican, $2.20-2.30 per gallon; a few sales at $2.40. New York State, buckwheat, 18-21c per pound. Beeswax: 442 bags, 90 boxes West Indies arrived. Demand and movement moderate. Light, 42-43c; dark, 40-42c per pound.

Philadelphia: 1 Wyoming extracted arrived. Demand very slow, weak feeling. No sales reported.

Spokane: No rail arrivals. Supplies not cleared up. Demand and movement moderate. Quality and condition good. Sales direct to retailers. Strained: Idaho, water white in tins, 20-23c per pound.

St. Louis: Supplies light. Demand and movement slow. Sales to jobbers: Extracted: Southern, light amber, per pound, in barrels 19-20c, in cans 21-22c. Comb: Practically no supplies on market. Beeswax: Prime, few sales, 35c per pound.

St. Paul: Supplies liberal. Demand and movement slow. Sales direct to retailers, Colorados, quality and condition good, fancy white, 24-section cases, mostly $7.50. Extracted: Western, quality and condition generally good, mostly 25c per pound.

### Export Distribution of Honey

(Compiled from data supplied by the Bureau of Foreign and Domestic Commerce.)

| Country to which exported | Jan. 1-10, 1919 |
|---|---|
| Total | 37,218 lbs. |
| Including Canada and New Foundland | 34,074 lbs. |
| China | 600 lbs. |
| Corresponding 10-day period 1918 | 560,808 lbs. |

| | January 10-20, 1919 | Total since July 1, 1918 |
|---|---|---|
| Total | 87,860 lbs. | 4,208,668 lbs. |
| Including Canada and New Foundland | 83,887 lbs. | 694,622 lbs. |
| United Kingdom | | 2,986,831 lbs. |
| France | | 492,301 lbs. |
| Norway | 1,920 lbs. | 1,920 lbs. |
| China | 1,148 lbs. | 6,375 lbs. |
| Corresponding 10-day period 1918 | | 873,597 lbs. |

## CLASSIFIED DEPARTMENT.

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

### BEES AND QUEENS

QUEENS—Bees by the pound, 3-banded and golden. They are hustlers, gentle to handle, cap their honey white, are very resistant to European foulbrood. Booking orders now one-fourth down, balance at shipping time. See January "ad" for prices on bees by the pound. Quote nuclei f. o. b. here, 2-frame nuclei, $4.50; 3-frame nuclei, $6; 1-frame nuclei with 1 lb. extra bees, $4.50; 1-frame nuclei with 2 lbs. extra bees, $6; 2-frame nuclei with 1 lb. extra bees, $6. No discount on nuclei. Select untested queens, $1.50 each; 25 or more, $1.35 each. Tested queens. $2.50. Select tested, $3. Free circular giving details.
Nueces County Apiaries, Calallen Texas.
E. B. Ault, Prop.

FOR SALE—Goldens and 3-bands, as good as the best. I have a limited number of tested queens for early shipping at $2 each. Untested, after May 1. $1 each. Safe delivery guaranteed if not more than 5 days in transit. No bees for sale.
H. P, Gannaway,
R. 1, Box 208, Fort Smith, Ark.

FOR SALE—For spring delivery—Colonies of Italian bees fine strain, with tested queen, in 1-story 8-frame single-wall hives, full depth, self-spaced, Hoffman frames, nearly all wired, $10 each. A few colonies in 10-frame hives, $11 each; all free from disease; f. o. b. here.
Wilmer Clarke, Earlville, Mad. Co., N. Y.

FOR SALE—Mott's Northern Bred Italian queens, untested, $1 each; 6, $5.50; 12, $10. List free. Plans "How to Introduce Queens, and Increase" 25c. Also Golden Campine eggs; best laying bird out.
E. E Mott, Glenwood, Mich.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. H. G. Dunn,
The Willows, San Jose, Calif.

GOLDENS that are true to name, Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50. $40; 100, $75. Garden City Apiaries.
San Jose, Calif.

FOR SALE—Bright Italian queens, $1 each; $10 per doz. Ready April 1. Safe arrival guaranteed.
T. J. Talley, R. 4, Greenville, Ala.

BEES AND QUEENS When you can't get them from others you can from us. 1 lb. package, $2; 2-lb. package, $3.75 Queens, $1 each, $11 per doz. Good stock; no disease; order quick. Pelican Apiary,
P. O. Box 108, New Orleans, La.

FOR SALE—Two-pound packages of bees for April and May delivery.
E. Eggeman, Allenville, Ala.

SAVE THAT QUEENLESS COLONY—Introduce a vigorous tested queen. We can supply them by return mail, $1.50 each. Three-banded Italians only. Queens are healthy and prolific, reared last fall and wintered in four-frame nuclei; no disease.
J. W. K. Shaw & Co., Loreauville, La.

Head your colonies with Simmons' Famous Italian Queens They took first premium at New York State Fair last September. Goldens or three-bands: 1, $1.50; 6, $7.50· 25, $30. Orders booked now and filled in rotation. Also nucleus from same stock ready for June delivery. Allen R Simmons,
Fairmount Apiary, Claverack, N. Y.

J. B. BROCKWELL'S Golden Queens, untested. May, June and July, $2 each; six, $7.50; doz., $14; tested, $4 each. Breeders, $5 to $20 each; 3-f. nuclei with tested queen, $9.
Barnetts, Va.

GOLDENS—When you get tired being stung try one of these; tested. $2; untested, $1.
Honeysuckle Apiaries, R. F. D. 1 Box 208,
Fort Smith, Ark.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln. Ill.

FOR SALE—3-band Italian queens ready June 1. Untested, each $1; twelve, $10; 100, $80. No disease here and satisfaction guaranteed. A. E. Crandall & Son.
Berlin, Conn.

LEATHER and all dark colored Italian queens. when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock. C. W Phelps & Son,
No. 3 Wilcox St. Binghamton, N. Y.

SWARTS GOLDEN QUEENS produce golden bees of the highest quality; satisfaction guaranteed. Mated, $1, 6 for $5; tested, $2.
D L Swarts, Lancaster, O., Rt. 2.

WRITE ME for prices on queenless packages in quantity. E. A. Harris Albany, Ala.

FOR SALE—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, $1.25 each; 6, $6.50; 12, $11. Satisfaction guaranteed. W. T. Perdue.
Route No. 1, Fort Deposit, Ala.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2. C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

QUEENS FOR SALE—Quirin's hardy northern bred Italians will please you. All our yards are wintered on summer stands. Tested and breeders ready any time weather permits mailing. Untested about June 1. Orders booked now. Testimonials and price list for asking. Have been a commercial queen-breeder for more than 25 years.
H. G. Quirin, Bellevue, Ohio.

BEES BY THE POUND OR CAR LOAD—I am now able to supply you with bees and queens in any amount that you might want, having made arrangements with two southern breeders to handle all their early bees. Five other large breeders also have promised to fill my surplus orders. So before buying your bees, get my estimate. I may be able to save you money on express rates, if nothing else. Canadian trade solicited. George W. Brown,
Lynnhurst Apiary, Wilson, Wis.

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each: half doz., $4.50. or $8 per doz. Select untested, 90c each: half doz., $5.50. or $10 per doz. Tested. $1.50 each. Safe arrival guaranteed.
Tillery Bros., R. 5, Box 1D, Georgiana, Ala.

QUEENS from one of Dr. Miller's breeders. tested. $1.75 each. $18 per doz; untested. $1.25 each, $13 per doz ; 1 frame nucleus, $3, 2 frames $5, 3 frames $6.50 each, without queens. We have never had any disease here. Safe arrival and satisfaction guaranteed. We have no package bees to offer, and no untested queens, except with nuclei. Delivery April 15.
Geo. A. Hummer & Sons.
Prairie Point, Miss.

GOLDEN ITALIAN QUEENS—Bred for quality, one, $1; six, $4.25; twelve, $8.25; 100, $60. Tested, $2 each.
L. J. Pfeifer, Route "A," Los Gatos, Cal.

2500 COLONIES OF BEES—From these apiaries the Edson Co. produce and sell first-class laying Italian queens, leather-colored or goldens. Write for particulars. Address,
The Edson Co., Biggs, Cal.

FOR SALE—Bees in 2-pound packages, by parcel post; also the finest Italian queens. Delivery and perfect satisfaction guaranteed. Write for prices. Have 700 colonies to supply from. Jasper Knight, Hayneville, Ala.

QUEENS—3-banded Italians, from best stock; untested queens in April, May and June, one, $1; twelve for $10. Tested, $1.50 each; if you want as many as 50 queens, write for prices and discounts on early orders; no disease. Safe arrival and satisfaction guaranteed.
O. D. Rivers,
Route 4, Honey Grove, Texas.

WANTED—Bees in lots of 5 to 50 or more colonies. J. F. Coyle, Penfield, Ill.

FOR SALE—Leather-colored Italian queens, tested, to June 1, $2; after $1.50; untested, $1; $10 per dozen.
A. W. Yates,
15 Chapman St., Hartford, Conn.

GOLDEN ITALIAN QUEENS and bees; honey-getters, prolific and gentle. Bees by the pound. Write for prices.
J. W. Rice, Box 64, Fort Smith, Ark.

FOR SALE—30 hives of black bees in 8 and 10-frame hives, new and painted; for bulk honey, $6.50 per hive.
J. T. Collins, Ludowici, Ga.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo

## FOR SALE

FOR SALE—92 acres of good tillable land, all fenced, 1½ miles from Columbia river, near fireweed belt; 60 miles west of Portland, Ore. Will include apiary of 86 colonies and supplies for between 200 and 300 for comb and extracted honey. Large workshop; fine location; 20 acres clear bottom land, creek for fishing on the place; 25 acres of young fir timber. Large, modern new house; room for two families; good orchard; school house on place. Spring water piped everywhere. Cement walks and fountain. Lawn, two barns 100 feet long; outbuildings, etc. Lots of farm implements, including some furniture, 3 cows and 1 horse. Mild climate, short winters, no wind or storms. A fine location, as there is a big out ranch of 1,000 acres of logged-off land. Logging company under obligation to carry freight. A bargain at price, $8,000; $3,000 down, balance time at 6 per cent
Mrs. L. Schmitt, Oak Point, Wash.

FOR SALE OR EXCHANGE—One Hatch wax press; also one Barnes foot-power saw.
Frank Hoopes, East Downington, Penn.

FOR SALE Root Novice Extractor, never used; perfect condition, $20.
George Graves, Gt. Barrington, Mass.

FOR SALE—Silver Spangled Hamburg eggs and fine, rare old Paganini violin for sale.
Elias Fox, Union Center, Wis.

FOR SALE—1,000 fence separators, $2.50 per 100; 2,000 slotted wood separators, $1 per 100; plain or slotted section holders, $3 per 100; 2,000 Lewis No. 1 sections plain and beeway 4¼x4¼, at $4 per 500, new; 500 Jumbo frames, $1 per 100; 75 24-lb. 2 in glass single tier Lewis shipping cases, $10 per 25; 2 Daisy foundation fasteners, with lamps, at 75c and $1.50; 10-oz. round screw cap honey jars with liner in 2-doz. reshipping cases, per gross, $6. 100 division boards at 5c each.
Edw. A. Winkler, Joliet, Ill.

FOR SALE—20 colonies Italian bees in new Lewis painted, wired 8-frame hives; 24 8-frame, full story extracting supers, with wired full comb frames; 10 queen excluders (wire); 10 bee escapes, 1 Cowan No. 15 extractor; all new; a bargain.
A. S. Kriebel, Pittsville, Wis.

FOR SALE—A nice little bee farm, 40 acres, and apiary; a good location for a beeman; no better location in Wisconsin or Michigan; territory not occupied; fine roads; will give details and reasons for selling to anyone interested. G. C. Chase, Robbins, Wis.

FOR SALE—We offer for sale the following slightly shopworn supplies, which are as good as new for all practical purposes, and of standard make, at reduced prices, as listed:
50 10-fr. Dov. supers with 5⅜ shallow extracting frames, in crates of 5 ....$4 per crate
70 10-fr Dov. supers for 5⅜ shallow extracting frames, empty, in crates of 5, $2.25 per crate
50 8-frame Tri-State bodies, with loose hanging frames, in crates of 5. ............... $4 per crate
50 8-frame Tri-State bodies, empty crates of 5 ........ ........ $2.65 per crate
30 10-frame Wisconsin supers, complete with inside fixtures, in crates of 5, $2.50 per crate
Dadant & Sons, Hamilton, Ill

FOR SALE—3-banded Italian bees for May delivery:

| | |
|---|---|
| 1 lb. bees with untested queen | $3.00 |
| 2 lbs. bees with untested queen | 5.00 |
| 2 fr. nuclei with untested queen | 5.00 |
| 3-fr. nuclei with untested queen | 6.00 |
| 1 full colony in 8-fr. D. T. hive on wired comb | 10.00 |

My bees have taken more first premiums at the Iowa State Fair than any other in the past 30 years. Discount on orders with cash for March, 5 per cent; for April, 3 per cent. Reference, any bank in Knoxville, Ia.
J. W. Bittenbender, Knoxville, Iowa.

FOR SALE—About 300 extracting supers, 8 and 10-frame size. C. E. Keister,
Clarno, Wis.

FOR SALE—Bee hives, supers, sections, smokers, bee veils. Foundation and bee books illustrated. Catalog for stamp.
J. J. Fitzgerald, Mitchell, S. D.

FOR SALE—Bees, 1-lb, $2; 2-lbs, $3.75; 3-lbs., $5.50; 3-banded queens, untested, $1.25; tested, $2 each. Deliveries of pound packages from April 20 to May 20; queens until July 1.
Elevation Apiaries, Milano, Texas.

FOR SALE—2 nearly new 22-cal. repeating rifles; will trade for extractor or typewriter. Write. Wm. Feier, Jr., Mason, Mich., R. 2.

FOR SALE—Bees, queens and supplies. Discount early orders.
R. Kramske, 1104 Victor St., St. Louis Mo.

FOR SALE—5½ acres of ground, 100 stands of bees; will sell cheap. Ill health reason for selling. Write for particulars.
W. E. Gray, Wyoming, Ill.

FOR SALE—

| | |
|---|---|
| 20 8-fr. 1½-story Falcon Dov. hives, section and foundation, metal covers; K. D. | $85.00 |
| 5 K. D. 8-fr. super foundation and section | 6.00 |
| 3,000 No. 1 1⅞ Falcon sections | $27.00 |
| 1,000 No. 2 1⅞ Falcon sections | $ 8.75 |
| 8 8-fr. zinc and wire excluders | $ 2.50 |
| 19 lbs. thin super foundation | $16.00 |
| 30 lbs. med. brood foundation, L size | $22.00 |
| | $167.25 |

All new standard goods; $165 takes the lot. Speak quick.
Anton G. Anderson, Holden, Mo

FOR SALE—A well equipped apiary of 75 colonies of a good strain of bees (Italians) in a good location for honey, and have established a market and good price for my honey.
P. J. Thullen, Huntsville, Ala.

FOR SALE—New hives, ⅞-in. white pine, bottom-boards, covers and frames for sale at 33 per cent off usual prices. Write for particulars. O. L. Rothwell, Gillett, Pa.

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you. The Deroy Taylor Co.,
Newark, N. Y.

FOR SALE—A limited number of bees and queens for May delivery from either home apiaries of South Carolina; safe delivery guaranteed if shipped by express. Parcels post shipments at buyer's risk. We invite correspondence as to details and price.
The Deroy Taylor Co., Newark, N. Y.

HATCHING EGGS—Plymouth Rocks, all varieties; Anconas and Rouen ducks. Illustrated catalog 3c.
Sheridan Poultry Yards,
R. 13, Sheridan, Mich.

FOR SALE—Frame nailing device. You can make very satisfactory and simple device. Send 50c for drawings showing construction and operation for nailing Hoffman frames; use idea for nailing any style of frame.
Clarence Aldrich, Santa Barbara, Calif.

FOR SALE—40,000 pounds of No. 1 extracted clover honey and 35,000 pounds of aster honey; both of extra light color, heavy body and fine flavor, in 60-lb. cans.
W. B. Wallin, Brooksville, Ky.

FOR SALE—Cedar or pine **dovetailed hives; also full line of supplies, including Dadant's** foundation. Write for catalog.
A. E. Burdick, Sunnyside, **Wash.**

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—Finest quality clover and buckwheat extracted honey, in 60-pound cans.
O. W. Bedell, Earlville, N. Y.

## SITUATIONS

WANTED—Man with some experience to work with bees coming season; state age, experience and wages; we furnish board. The Rocky Mountain Bee Co., Billings, Mont., Box 1319.

WANTED Work by Australian expert, between April and July 16; managed 500-colony apiary; produced 19 tons in one season; expert queen raiser (after Doolittle). Reply at once, stating wages. 39337 for Rosser J. H., care Miss Lahey, 23 Paddington Green, London, W. Q.

WANTED—Situation; student having attended winter course in general agriculture and also special course in beekeeping, held at Cornell University this winter, is anxious to secure employment in apiary, preferably in New York State. Strong, interested and careful.
H. J., care American Bee Journal,
Hamilton, Ill.

WANTED—A position as assistant in apiary by a strong, young college woman interested in commercial beekeeping. Ready to begin work at any time. Camelia Winford,
120 Oak Ave., Ithaca, N. Y.

WANTED—For the season of 1919, one or more men to work with bees. State age, experience, wages, and give reference.
A. J. McCarty,
712 Coffman St., Longmont, Colo.

WANTED—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near Summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

WANTED—Two brothers, both single, well experienced in apiary work, orchard and poultry raising, desire to purchase apiary, part cash to be paid down, or are willing to run apiary on shares or for wages. Both elderly men and trustworthy
H. R., care American Bee Journal,
Hamilton, Ill.

## SUPPLIES

BEEKEEPERS OF THE NORTHWEST—Save by ordering your supplies near home. Standard goods; Factory prices.
Geo. F. Webster, Sioux Falls, S. Dak.

FOR SALE—100 8-frame wood and zinc excluders and 100 8-frame unbound zinc excluders, 25c each; these excluders have only been in use one season and are as good as new; have been thoroughly boiled.
Wm. Ritter, Palmdale, Calif.

FOR SALE—Extra good second-hand cypress supers at 60c and bodies at 80c; also three Root honey extractors, cheap. Write for price.
Mitchell & Mathis, Falls City, Texas.

WANTED—Used hives and supers, foundation mills, extractors, bees and bee equipment. State lowest cash price wanted.
W. A. Latshaw Co., Carlisle, Ind.

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

## MISCELLANEOUS

SHORT COURSE LECTURES Typewritten reproductions of complete shorthand record of the 13 principal lectures by Dr. E. F. Phillips and G. S. Demuth, of the U. S. Department of Agriculture, at Davis, San Diego and Visalia, Calif., meetings and repeated at Cornell University. See February Bee Journal. Complete with questions and answers, blackboard diagrams, etc. Beekeeping principles practically applied to both eastern and California conditions. These are straight talks on honey and beekeeping: 55,000 words, nearly equal to a 200-page book. Price $1.75.
R. B. Calkins, 5800 Hearn St., Oakland, Calif.

WE WANT every subscriber of the American Bee Journal to become a subscriber of the Domestic Beekeeper. Listen: A $5 or more order of beekeepers' supplies at catalog price bought through the Domestic Beekeeper, Northstar, Mich., and a dollar extra for a year's subscription to the Domestic Beekeeper, will entitle you to a dollar rebate, leaving your subscription to the Domestic Beekeeper absolutely free. Could one ask more? This offer will give one an idea of what the Domestic Beekeeper is doing for its subscribers in the way of buying their supplies.

E. D. TOWNSEND, the present owner of the Domestic Beekeeper, bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the Domestic Beekeeper at the same low manufacturers' price. Listen now what he has got up his sleeve: Any American Bee Journal subscriber buying $5 worth of supplies through the Domestic Beekeeper at catalog price, and sending along an extra dollar to pay for a year's suoscription to the Domestic Beekeeper, will get in return a rebate check of $1, leaving the year's subscription to the Domestic Beekeeper absolutely free to you. Of course, if your order for supplies is larger than $5 you will have a correspondingly larger rebate check on your order. One of our subscribers got a rebate check on his order of supplies last month, March, of $10. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought through the regular dealer in beekeeper supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the Domestic Beekeeper. A word to the wise should be sufficient to cause you to send your next order for beekeeper supplies to the Domestic Beekeeper, Northstar, Michigan.

SONG—"The Plea of the Bee," or "The Honeybee Doing Its Bit." Sent to any address on receipt of 15 cents. The Cutting Publishing Co., 910 Merchants Bank Bldg., Indianapolis, Ind.

THE WAGNER CAPPING MELTER No experiment, in use over 5 years, highly recommended by practical apiarists all over the country; a perfect machine; separates honey from cappings and broken combs, while at the same time heats honey knives. Cheapest in price, cheapest to operate. Price only $7.50, fully guaranteed
A. F. Wagner,
Bonita, San Diego Co., Calif.

## HONEY AND BEESWAX

CLOVER-AMBER BLEND HONEY in new 60-pound cans. Satisfaction guaranteed.
Van Wyngarden Bros., Hebron, Ind.

FOR SALE—4 60-lb. cans choice extracted buckwheat honey, 1 60-lb. can clover and buckwheat mixed, 400 sections fine quality buckwheat honey, about 400 sections fine clover and about 200 sections clover and buckwheat mixed in 4¼x1¾ sections. Will sell the whole lot at 19c or a part of it at 20c. f. o. b. here. Send cash with order.
Wilmer Clarke, Earlville, Mad. Co., N. Y.

FOR SALE—Buckwheat honey in 120-lb. cases, at 17c per pound.
C. B. Howard,
Geneva, N. Y.

CLOVER and heartsease honey, fine flavor, in new 60-lb. cans at 25c.
Edw. A. Winkler, Joliet, Ill.

**WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.**

FOR SALE No. 1 white extracted honey in No. 10 pails weighing 10 pounds gross; $3 per pail f. o. b. here.
B. F. Smith, Jr., Fromberg, Mont.

FOR SALE—Clover, heartsease, No. 1 white comb, $6 per case, fancy, $6.50; extra fancy, $7; 24 Danz. sections to case; extracted, 120-lb. cases, 25c per pound.
W. A. Latshaw Co., Carlisle, Ind.

**FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.**
**A. G. Woodman, Grand Rapids, Mich.**

**WANTED—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax.**
E. B. Rosa, Monroe, Wis.

WANTED—Comb, extracted honey, and beeswax
R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City

## WANTED

WANTED—Hand-power extractor of good make and Peterson uncapping outfit; must be in good working order. Give full description and price.
C. H. Larison, Mondamin, Ia.

WANTED—July, 1916, June, July and December, 1917, and January and March, 1918 numbers of the American Bee Journal; will pay 10 cents per copy. Please wrap so that the whole Journal is protected.
American Bee Journal, Hamilton, Ill.

WANT TO BUY BEES—Chester E. Keister,
Clarno, Wis.

WANTED—150 to 200 colonies of bees to work on shares.
M. Knudsen,
320 Second St., Albert Lea, Minn.

WANTED—An extractor and queen excluders.
Harold Hicks, Long Lake, Mich.

WANTED Section honey. Correspondence solicited. J. E. Harris, Morristown, Tenn.

WANTED—Bees and Queens. Am still in the market for bees in 1, 2 and 3 pound packages; queens both tested and untested; also 1, 2 and 3-frame nuclei and drawn-out comb on Hoffman frames. Quote me your best prices.
George W. Brown,
Lynnhurst Apiary, Wilson, Wis.

WANTED—A second-hand 2-frame honey extractor and steam uncapping knife. Give full description and lowest price in first letter.
J. J. Fitzgerald, Mitchell, S. D.

WANTED—Good second-hand foot-power circular saw; state condition and price.
John D. Dietrich, Middleville, Mich.

WANTED—A partner with a number of good stands of bees; a No. 1 location. Prefer a middle-aged man and wife. State all your story in first letter. Charter member of the Iowa Bee Association. Separate house to live in.
Harry C. Hartman.
No. 2, Box 12, Braddyville, Page Co., Iowa.

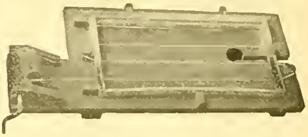
WANTED—to buy between 300 and 500 colonies of bees. Locations must go with it. Give full particulars in first letter. Address,
Box 67, Rigby, Idaho.

**WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.**
**Dadant & Sons, Hamilton, Ill.**

**CABBAGE CUTTER, SIX KNIVES, slices all vegetables rapidly. Prepaid, $1; three for $2. Lusher Brothers, Elkhart, Ind.**

**WANTED—December, 1917, and January, 1918 numbers of the American Bee Journal. Will pay 10 cents per copy.**
**American Bee Journal, Hamilton, Ill.**

**WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.**
**Superior Honey Co., Ogden, Utah.**



PATENTED

**Wright's Frame-Wiring Device**

Most rapid in use. Save cost of machine in one day. Tighter wires, no kinks, no sore hands.

**G. B. LEWIS CO.** Watertown Wis.

**U NEED AN E-Z-WAY BEE FEEDER**

MR BEES I DIV' 'OU A DOOD DINNER TODAY

The beekeeper who gets a big crop of honey, is the one that gets his bees ready to gather it.
ONE DOZEN REASONS why you should buy this Best-of-All Bee Feeders:
1st, the E-Z-Way Bee Feeder is trouble proof. 2nd, it is sting proof. 3rd, it is robber proof. 4th, you never disturb the bees in feeding. 5th, you never need smoke for your protection. 6th, it makes bee feeding a pleasure for young or old. 7th, it can be used on any patent gum, box or round gum. 8th, it is simplicity and durability combined, and will last a life-time. 9th, it will pay back its cost many times the first season. 10th, its use will save your bees, make you honey, and more money. 11th, the E-Z-Way Bee Feeder is so simple that a child can safely operate it, even at the hottest noonday. 12th is your guarantee, if after 30 days you are not entirely satisfied, return the E-Z-Way Feeder, and your money will be refunded.
You run no risk. Safe delivery guaranteed. Use any quart or half-gallon standard Mason fruit jar, in connection with the Feeder. The syrup is fed through a special cap, on the atmospheric method. You should buy it for the assistance that even the children will give you in feeding your bees, besides the great saving in time, and less trouble it means to you. Always keep your bees strong by feeding them when they need it. Guard against a honey famine. Full instructions with each feeder. Price $1, postpaid, to any address in the United States. Remit by Money Order, Cash or Stamps, to

**THE HOLDEN MANUFACTURING CO.,**
**Clarksburg, W. Va.**

**TYPEWRITER SENSATION**

$3 or $4 monthly **buys** a Beautifully Reconstructed Latest Model Visible Typewriter with back-spacer, decimal tabulator, two-color ribbon, etc. Every late style feature and modern operating convenience. Perfect appearance, perfect action and absolute dependability. Sent anywhere on approval. Catalog and special price **FREE.** **HARRY A. SMITH (314), 218 North Wells Street, Chicago, Ill.**

# Have You Placed Your Order

For summer delivery? Or are you going to let some one get ahead of you? Estimate the number of queens you will need, get in your order now for June and July delivery. Many will be disappointed in getting their queens this season, but if you get your order in now for

## FOREHAND'S THREE BANDS

The Thrifty Kind

the bees that have been tested for 27 years, the kind that are unsurpassed by none but superior to many, you will neither be disappointed in the delivery nor in your honey crop. Only one-fourth cash with order. We guarantee pure mating, perfect satisfaction and safe arrival in the United States and Canada.

### PRICES

| | After June 1 | | | After July 1 | | |
|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $1.25 | $6.50 | $11.50 | $1.10 | $5.50 | $10.00 |
| Select untested | 1.50 | 7.50 | 13.25 | 1.25 | 6.50 | 11.50 |
| Tested | 2.50 | 13.00 | 24.50 | 2.25 | 12.00 | 22.00 |
| Select tested | 4.00 | 22.00 | 41.00 | 3.50 | 19.75 | 37.00 |

**W. J. FOREHAND & SONS, Fort Deposit, Ala.**

# Golden Italian Queens

Rustburg, Va., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

### PRICES OF QUEENS

| | Nov. 1st to June 1st | | | June 1st to July 1st | | | July 1st to Nov. 1st | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $8 50 | $15 00 | $1 50 | $7 50 | $13 50 | $1 25 | $6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Safe arrival, purity of mating and satisfaction guaranteed

**No Nuclei or Bees by Pound**

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

# DIXIE BEEKEEPER

The first edition of this paper is now out and we are ready for subscriptions or to mail out sample copies. It covers the entire Dixieland with 32 pages of the most instructive matter pertaining to keekeeping.

**THE SUBSCRIPTION IS ONE DOLLAR PER YEAR**

**DIXIE BEEKEEPER, Waycross, Ga.**

## PACKAGE BEES

Package bees without queen, as follows:

1 lb., $2.20; 2 lbs., $4; 3 lbs., $5.75

Untested queens, $1.25 each; tested, $2.50; select tested, $3.

**E. A. HARRIS, Albany, Ala.**

## "QUEENS OF QUALITY"

The genuine "Quality" kind of 3-band Italians—bred strictly for business. Write for circular.

**J. IVAN BANKS, Dowelltown, Tenn.**

## TOO LATE TO CLASSIFY

FOR SALE—20 8-frame Dove. hives, excelsior covers and reversible bottoms, $2.50 each.

13 8-frame No. 1 supers, 75c each.

12 8-frame No. 1 supers with sections and starters in sections, $1 each. Painted two coats; new, or as good as new.

15 Lang. Simp. supers, complete, 50c each.

1 Doolittle solar extractor, $4.

1 Lewis foundation fastener, $1.

6 Alex. feeders, 25c each.

The above have been used, but in good condition; the balance is all new.

200 Hoffman brood-frames, $5 per hundred.

1 Daisy foundation fastener, 75c.

6 wire entrance guards, 18c each.

1 wire, Alley queen and drone trap, 50c.

2 Carlin foundation cutters, 20c each.

2 Alex. feeders, 25c each.

150 slotted wood separators, $2.50 for lot.

1 wax tube fastener, 25c.

1 pair bee gloves, 75c.

50 Rauchfuss cages, 3c each.

1 Handy section press, 75c.

1 bristle brush, 20c.

1 spur wire imbedder, 20c.

300 folding cartons for 4¼x1⅞ sections, $4 for lot.

56 Hoffman frames with full sheets of wired foundation, 25c each, if packed in hives; 30c if packed separate.

15 lbs. of Dadant's extra thin super foundation, 90c in 5 lb. lots, 85c per pound for lot.

W. S. Pangburn, Center Junction, Ia.

## FOR SALE

The W. D. Soper entire stock of Bee Supplies. Send for list. 10 per cent off.

**H. L. SOPER, Admr.,**
**R. 4, Jackson, Mich.**

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

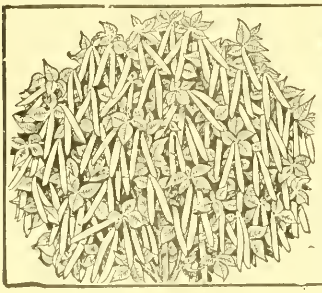
**JOHN M. DAVIS, Spring Hill, Tenn.**

## Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading. Send us your order for blank books and let us bind your magazines.

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**



# 1200 to 1 BEAN

This is a **Gigantic Bean**—Plants grow strong and erect, branching freely, bearing pods up well from the ground, which literally load the plant. Beans being pure white—of the best quality. **Over 200 Pods and 1200 Beans** have been grown on a single plant from **One Bean** planted.

Plant in your garden or any good soil, after danger of frost, anytime up to June 15, only 1 Bean in a hill and they will mature a crop in about 80 days, ripening very evenly, the growth and yield will simply surprise you. Just the Bean everyone should plant this year.

My supply is limited and I can only offer in **Sealed Packets**, each containing **over 60 Beans** with growing directions. Order early to be sure of them.

**Sealed packets 10c each; 3 pkts. 25c; 7 pkts. 50c; 15 pkts. $1.00; 36 pkts.** (over 2160 Beans) **$2 Postpaid.**

My New **Seed Book** is filled with **High Grade Garden Seeds** at lowest prices. Do not buy until you see this Book. It will save you money; it's mailed free.

**F. B. MILLS, Seed Grower, Dept. 40, ROSE HILL, N. Y.**

# FOR THE MAN WHO CARES

Honey Labels, Stationery, Cards, Tags, Circulars—Everything for the Beekeeper—in the Superb Style and Quality of . .

Printing that's Different

AMERICAN BEE JOURNAL, HAMILTON, ILL.

# BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping boxes; 3-frame nucleus and bees by the pound. Tested Italian queens, $2.

Price list free.

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

## Golden Queens

After April 1, untested $1.25 each, 6 for $7, or $13 per doz. or 50 for $48. Also untested 3-band at same price; tested, $3 each, and my very best $5 each. Satisfaction.

**R. O. COX**
**Route 4, Greenville, Alabama**

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red

EAT HONEY
NATURE'S OWN SWEET—AIDS DIGESTION

Price of 1,000 gummed, 85c.

**American Bee Journal Hamilton, Illinois**

# WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

**New York State Beekeepers' Society will make our Home Apairy (the Honey Bee) their headquarters August 1st, 1919, by holding their Field Meeting here.** Do not forget the date as there is being prepared an unusually interesting program, that you will not wish to miss. There will be complete directions how to get here in July number.

**THE DEROY TAYLOR CO., Newark (Wayne County) New York**
**The Home of Better Apiculture**

Our 1919 Catalog, also Beginners Book is free for the asking. If you do not have one send for same today. And remember Bees are stronger than usual which brings on early swarming.

**MARSHFIELD GOODS**

**BEEKEEPERS**

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

**A BIG STOCK OF**
**BEE SUPPLIES**

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**
**159 Cedar Lake Road MINNEAPOLIS, MINN.**

**PORTER BEE ESCAPE SAVES HONEY TIME MONEY**

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

**BEEKEEPERS**

Do not wait until the last minute to order your supplies. Order now.
We carry a complete line of beekeepers' supplies. Send us a list of your requirements for this season and we will quote you our lowest prices.

**Send for our 1919 Catalog**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

**BEE SUPPLIES**

**Let Us Figure With You**

We know we can satisfy you on price and quality. Write for catalog.

**C. C. Clemons Bee Supply Co.**
**Dept. S., Kansas City, Missouri**

**BARNES' Foot-Power Machinery**

Read what J. I. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

S
A
V
E

TIME

Freight Movements are Slow
Long Hauls Take Lots of Time
Council Bluffs is Centrally
Located

SAVE TIME by ordering your supplies from Council Bluffs

ON FREIGHT CHARGES

The **Freight** from **Council Bluffs is less** than from more distant points

MONEY

**You can Buy Supplies Cheaper Now** than you can later

OUR MARCH CASH DISCOUNTS WILL HELP YOU SAVE

---

THE KRETCHMER MFG. CO.,
COUNCIL BLUFFS, IA.
Dept. A.

Brood
Rearing
has
Started.

The
Bees
Will
Not
Wait.

Order
Supplies
Now.

*Do you realize,*
*Mr. Beeman,*
*that*
*the first of March*
*has passed?*

June will soon be here
with its
hustle and bustle
for
*Bee Supplies*

"GRIGGS SAVES YOU FREIGHT"

**TOLEDO**

Why not send us your order now and get the goods ready? Don't delay. A list of goods wanted brings prices back by return mail.

*BEESWAX*

We use large quantities. Cash or in exchange for supplies. FREE catalogue ready to mail.

*S. J. GRIGGS & CO.*
*Department 25* *TOLEDO, OHIO*

"GRIGGS SAVES YOU FREIGHT"

# NOW'S REPAIRING TIME

CYPRESS LASTS PRACTICALLY FOREVER

## Don't Replace Rotten Wood with Wood that Will Rot

CYPRESS "THE WOOD ETERNAL"

We have a word to suggest to you practical men of affairs—you who build and maintain Bee Farms. The matter of annual repairs is no trifling consideration. Unless you use a lumber that possesses real INVESTMENT VALUE, these repair bills will eat great holes in the net income of your property. Cypress is so well certified—its character for "staying put" is so thoroughly established—that you are about certain to use it in the early spring repair jobs. Practically all live lumber retailers carry Cypress stocks, so you need have no trouble about getting exactly what you want. If your local dealer has no Cypress in his yard, write us and we will tell you where to get it.

### AUTHENTIC INFORMATION = FREE

Write our "All-Round Helps" Department if you are at all perplexed about what is best to do in the matter of lumber, for original work or for repairing. There are 43 volumes in the Cypress Pocket Library, covering all sorts of uses for the "Wood Eternal," and they are free to you. Vol. 1 is a reprint of Bulletin No. 95, Forest Service, Department of Agriculture—a certificate of the U. S. Government. Better get this booklet. Vol. 36 tells how to make easy a dozen hard jobs in Carpentry. Each of the 43 books is free. Vol. 1 contains a list of titles of these books. Start with Vol. 1; it's free to you. Why not write right now?

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**

1251 HEARD NATIONAL BANK BUILDING, JACKSONVILLE, FLA. 1251 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

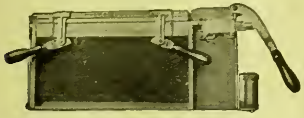
## Service and Quality

**Bee Supplies** **Bee Supplies**

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

**C. H. W. Weber & Company**

**2146 Central Avenue** **CINCINNATI, OHIO**



PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**
**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# ROOT'S GOODS GO ROUND THE WORLD

**In One Week,** during the month of February, 1919, orders for inquiries for **Root** supplies were received from the following countries

CHINA
JAPAN
AUSTRALIA
EAST AFRICA
INDIA
BRITISH ISLES
FRANCE
DUTCH EAST INDIA
GUATEMALA
SPAIN
HAWAII
NEW ZEALAND
PORTUGAL
GREECE
SIBERIA
SWITZERLAND
ITALY
WEST INDIES
CENTRAL AND SOUTH AMERICAN COUNTRIES

Such world-wide distribution is the result of a name and reputation built up on the solid foundation of business integrity, fair dealing, unsurpassed service and

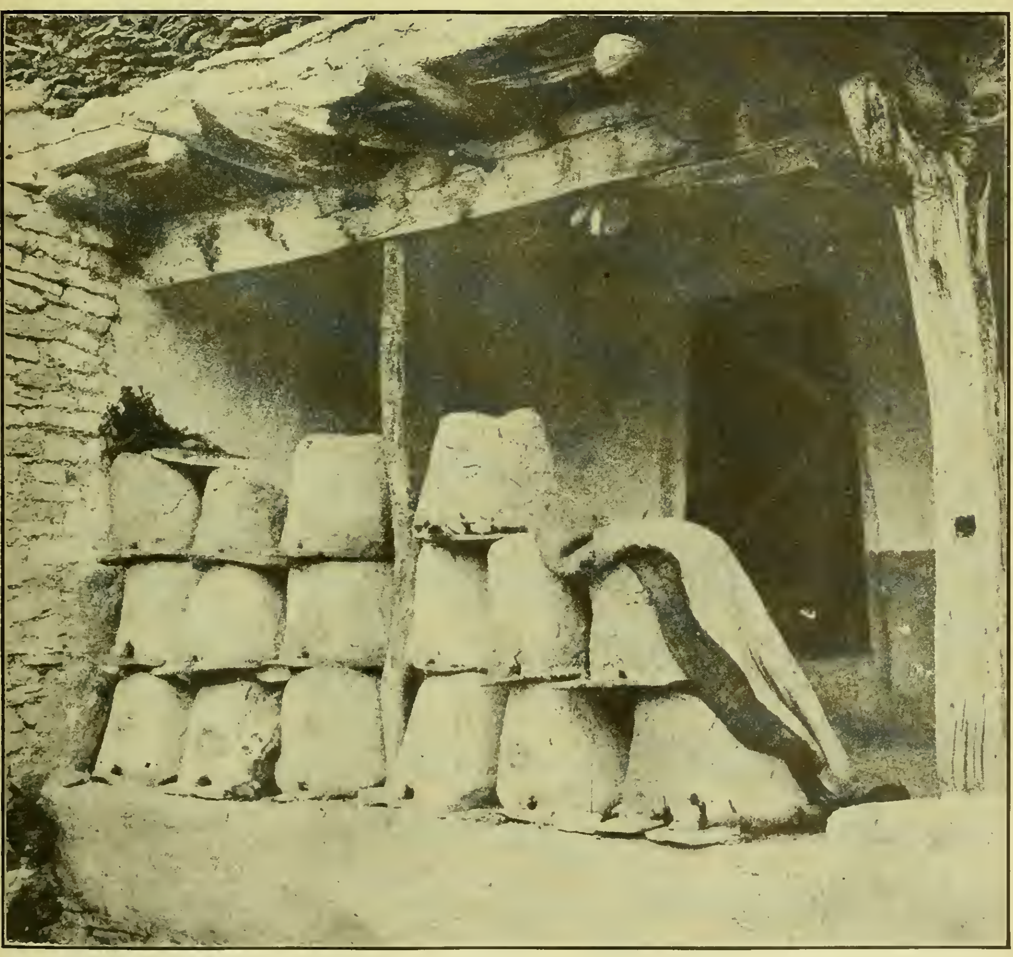
FIFTY YEARS OF EXPERIENCE IN MAKING GOODS OF HIGHEST QUALITY

THE A. I. ROOT COMPANY
MEDINA, OHIO

New York
Chicago
Philadelphia
St. Paul
San Francisco
Norfolk
Los Angeles
Indianapolis

# AMERICAN BEE JOURNAL

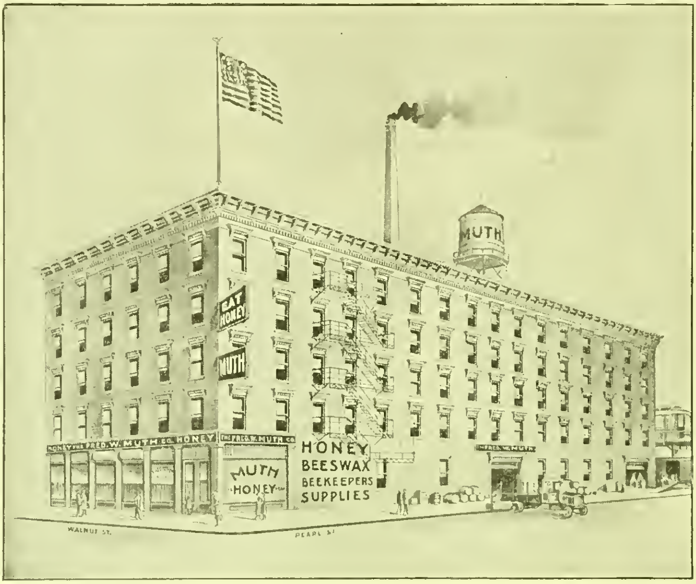
MAY, 1919



Apiary at a House Door in Dagestan. The Hives are of Wicker with Joints Filled with a Mixture of Clay and Manure. Rugs Cover Them in Cold Weather

Here's a Reproduction of

Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

**LEWIS' BEEWARE**

**DADANT'S FOUNDATION**

**ROOT'S SMOKERS, EXTRACTORS, ETC.**

**OLD COMBS AND CAPPINGS**
Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**
Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

**THE FRED W. MUTH CO.** Pearl and Walnut Streets
CINCINNATI, OHIO

"THE BUSY BEEMEN"

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

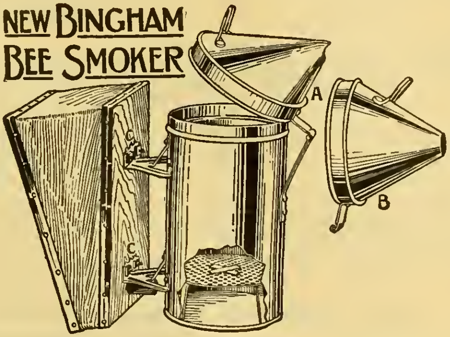
**Price $1.50**
Mailing weight, three pounds

ALL FOR SALE BY

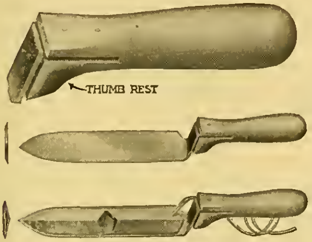
**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

---

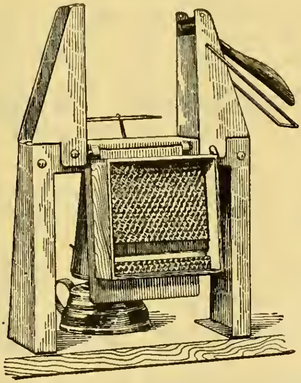
## NEW BINGHAM BEE SMOKER



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all important tool of the most extensive honey producers of the world. It is made in four sizes and has a leather bellows.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids, and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old-timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

The above specialties can be secured from us direct by post, or from practically all dealers and manufacturers of supplies, with the exception of the Root Company, and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

### TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60 pound Cans, giving quantity wanted.

**A. G. WOODMAN CO.**
GRAND RAPIDS, MICH., U. S. A.

"falcon" **IT MEANS** "falcon"

**Simply This:** We have got to "carry on" with all our might and with more "pep" than ever before. You are urgently requested to prepare to do your part when the time comes to "carry in" the enormous honey crop for which we must prepare.

**PREPARE IN THE RIGHT WAY BY ORDERING EARLY**

This will save time, money and honey, and will be gratifying to your ambition to help your country and fellow citizens. Let them have a good quality of honey and lots of it. **You Can Do It.** Get the goods that you are going to need and have them ready for the beginning of the season. To make this more of a saving to you, we are giving an **early order cash discount of 10% for shipment prior to December 1, 1918.**

**Use only the goods that are tested and known to be the best and most reliable; therefore, "falcon" goods will give the best results. Our goods are made by experienced and interested workers. This is the reason we are known in every land.**

SEND THAT LIST OF REQUIREMENTS TO US AT ONCE FOR PRICES
Catalog and "Simplified Beekeeping" on request

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Best Beehives Come From**

**The Diamond Match Co.**
(APIARY DEPT.)

MANUFACTURERS OF
**Beekeepers' Supplies**
CHICO, CAL., U. S. A.

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
**Apiary Department** **CHICO, CAL., U. S. A.**

**What Others Say About "Superior" Foundation**
**READ THE FOLLOWING**

Nampa, Idaho, March 12, 1919.

Superior Honey Co.,
Ogden, Utah.

Dear Sirs: I am shipping you 62 pounds of beeswax. Please manufacture it into Medium Brood Foundation. I don't want any better than you made me last year, as **my bees took to yours first**. Kindly give me an estimate of number of sheets, as I want to get enough for 100 hives.

Yours truly, GEO. GOSVENOR.

Allow us to state that we have never met Mr. Gosvenor, and this testimonial comes to us entirely unsolicited. We have never gone so far as a certain manufacturer who advertises that "the bees take to theirs first," but we are pleased to note that Mr. Gosvenor's bees took to ours first. This verifies our own exhaustive experiments whereby we have proven that any such faculty among the bees is determined entirely by local conditions, such as the freshness of foundation used, the weight of the sheets, the nature of the honey-flow, etc. We do claim, however, that our "SUPERIOR" FOUNDATION is not surpassed in quality by any other make.

**SUPERIOR HONEY CO., Ogden, Utah**
(Manufacturers of Weed Process Foundation)

**EARLY ORDER DISCOUNTS WILL**
**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**
**or J. W. ROUSE, Mexico, Mo.**

**MOTT'S NORTHERN-BRED ITALIAN QUEENS**

that resist disease well, therefore must be hardy, prolific, and hustlers; they are gentle. Untested, $1 each, 6 for $5.50, 12 for $10. Select tested, $2 each. Plans, "How to Introduce Queens" and "Increase," 25c.

**E. E. MOTT Glenwood, Mich.**

# Home Wax Rendering— Does It Pay?

More and more we are becoming a nation of specialists. In former times, for various reasons, it was advisable to spin cloth at home, to make clothes, to grind flour, etc.

Yet it is seldom that such operations are undertaken now by the individual family. It does not pay. The time spent if valued at anything, would more than pay for the finished product.

Not only are you saving time, but also beeswax as a battery of high pressure steam presses under the supervision of a specialist can get more wax out of the same amount of combs than can the individual beekeeper with a makeshift press on a kitchen range.

> Dear Sirs:
>
> "Your bill for rendering beeswax, enclosing check for $21.65, to pay for wax retained by you was received yesterday. I am very much pleased with the result of my sending old combs to you. The quantity of wax secured is greater than I expected and the exceeding promptness with which the matter was attended to was very gratifying. If I have combs of the same kind to be rendered again I shall certainly send them to you."
>
> February 16, 1919 HANNAH R. SEWELL, Forest Glen, Md.

> Gentlemen:
>
> "Your statement of wax rendered and bill for making same into foundation is received. I enclose check for $7.93 for the balance due you. You got 25 pounds more of wax out of it than I estimated and I also got rid of a messy job.
>
> FLOYD MARKHAM, Ypsilanti, Mich.

Send us your refuse, scrapings, combs or cappings.

When shipping same be sure to bill as **Beeswax Refuse** so as to get the lowest freight rate.

**PRICES AND TERMS ON APPLICATION**

**DADANT & SONS, Hamilton, Illinois**

# BEEKEEPERS!

Beware of an over-production of extracted honey and an under-production of comb honey.

Those of you who are equipped for **comb honey---stick to it.**

**Buy Lewis Sections**

**Millions in Stock Now Waiting for Your Orders**

If you have never used **Lewis sections,** ask your neighbor about them.

**LOOK FOR THE BEEWARE BRAND**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS USA
MAKES THE FINEST

## Announcement---Addition to the Beeware Family

Following the Lewis Policy of cooperation between manufacturer and beekeeper, we are glad to announce the active connection with our company of Mr. Kennith Hawkins, bee specialist, who for seventeen months was in charge of bee culture extension work in the fifteen Southern States for the U. S. Department of Agriculture under Dr. E. F. Phillips at Washington.

The subject of this announcement, although a younger member of the beekeeping fraternity, has been devoting his entire time to bee culture as a livelihood since 1909. He is well known to many beekeepers as formerly the breeder of "Quality Hill" queen bees at Plainfield, Illinois, and has an acquaintance with hundreds of beekeepers in the south, as well as in the middle west, through his extension work in bee culture with the U. S. Government. At present Mr. Hawkins owns or operates apiaries in Illinois, Florida, Texas and Wisconsin.

He will devote his entire time to the service of the G. B. Lewis Company, and will handle bee culture problems in their relation to the manufacture of bee supplies and will be ever ready to answer any queries on bee culture which may be sent to the office of the G. B. Lewis Company or any of their distributers.

**G. B. LEWIS COMPANY, Watertown, Wis.**

AMERICAN
BEE JOURNAL

VOL. LIX—NO. 5 HAMILTON, ILL., MAY, 1919 MONTHLY, $1.00 A YEAR

# SOME SOUTHERN HONEY PLANTS

BY FRANK C. PELLETT
Photos by Florida Photographic Concern

THE honey plants of the north are widely distributed and the same source is important over a wide range of territory. In the south many plants which are important are restricted to a comparatively small range of territory. The following plants are all valuable in a few localities, but are not widely distributed:

### Black Mangrove

The Black Mangrove, **Avicennia nitida,** is also known as blackwood or blacktree. It is an evergreen tree, growing along the seashores of the coast of Florida. It is said also to occur to some extent along the gulf coast to Texas and throughout the coasts of Tropical America. It varies from a bushy shrub to a tall tree 60 or more feet in height in tropical regions. The wood is coarse-grained, hard and very durable in contact with the soil. The tree is to be found only in the vicinity of salt water.

The honey from mangrove is light in color, mild in flavor and is generally regarded as of first quality. According to E. G. Baldwin it was the heaviest yielder of nectar known in the south, prior to the big freeze in 1895. In one year he reports Harry Mitchell, of Hawk's Park, as having secured an average of 380 pounds per colony from mangrove alone. Following the freeze it failed to yield nectar in surplus quantity for about fifteen years, and reports since that time have not indicated that it is up to its former importance.

The blooming period opens about the middle of June and usually includes the entire month of July. The flow usually lasts from six to eight weeks.

### Pennyroyal

Wild Pennyroyal, **Satureja rigida,** is a square-stemmed plant of the mint family that grows abundantly on the sandy pine lands of the south half of Florida. It begins blooming in December in the southern part of its range, and blooms till early in March. Weather conditions are too uncertain during the winter months to favor storing much surplus honey. However, according to Poppleton (Review, Jan., 1893), it is the source of some surplus and from it the bees are stimulated to begin heavy brood-rearing about Christmas. In an occasional season a fair amount of surplus was secured, sometimes as much as 50 pounds per colony. The honey is said to be light in color, good flavor and heavy body—a first-class article.

Mangrove bloom.

Blooming as it does in the winter months, it is invaluable to the beekeeper whose bees have access to it. If no surplus is secured it serves to fill the hives with bees and honey at an important season and to prepare for the later crops to follow.

### Gallberry

The Gallberry, in some localities better known as Inkberry, **Ilex glabra,** is usually heard of as a honey plant only in the south. However, it occurs as far north as Nova Scotia on the seashore and along the coast from Massachusetts to Virginia and Florida, and west to Louisiana. It is a common shrub in the low pine barrens of all the Gulf States. It is a small evergreen shrub with small, dark leaves. It is an important honey plant in southern Georgia, where it is widely distributed over the sandy lands, especially of the coastal plains. It grows in dense thickets and rapidly extends over newly cleared lands.

### A Valuable Plant

"As a honey plant perhaps it has no equal in the southeast. We have never failed to get a surplus from it, even during the most unfavorable weather conditions. It begins to bloom the first of May and continues for 24 to 28 days. During this time bees disregard other bloom, working it up to about 8 o'clock for pollen, then the flow comes on for the remainder of the day. * * * It is a great bloomer, even the stems are rolls of bloom. * * * We have never taken off a large crop of this honey, as 147 pounds of surplus is the best crop we have ever had from one colony. The honey is a light amber color, has a heavy body, a very mild taste, and is highly flavored. The demand for this honey is so great that we cannot furnish our local markets, consequently very little is shipped from the southeast to other markets.

"We have raised tons of this honey and have never seen a pound of the pure article, well ripened, that granulated.

"It has been said that it is impossible to overstock a good gallberry location. We do not know that this statement is true, but we have never heard of one being overstocked. We have had bees in a location where there were 362 colonies with the same result as with 100 colonies. Good gallberry locations are nearly numberless and large quantities of this fine honey are wasted every year in localities where there is not a bee to gather it. The gallberry should be included in the list of the best honey-plants."

J. J. Wilder, Cordele, Ga., Gleanings, page 1200, September, 1907.

**The Banana**

Since the banana plant is little grown in the United States it is seldom mentioned as a honey plant, yet it secretes nectar very abundantly, and in countries where bananas are grown on a large scale it must be important to the beekeeper. We are showing herewith two illustrations, one of the plant in fruit and one showing the opening of the bloom.

The following description of the possibilities of this plant is reprinted from page 83 of The American Bee Journal for 1880, and was written by a correspondent in Clifton Springs, Florida:

"Recently noticing bees working upon blossoms I concluded to examine them. To my surprise I found that each blossom had a sack on its under side, which contained several drops of nectar of the consistency and sweetness of thin syrup. This sack gradually opens, allowing the contents to escape, unless appropriated by some insect. The blossom hangs in a position that rain cannot enter to dilute or wash out the nectar. Procuring a teaspoon I emptied into it the contents of a dozen blossoms, which filled it full. Each stalk, on good land, will produce a head having a hundred hands or divisions of blossoms, and each hand averages six blossoms, giving 600 blossoms to the stalk. Estimating 100 teaspoonfuls to the pint (88 of the one used filled a pint measure) we have 50 spoonfuls, or half a pint to the stalk. Planted in checks 8x8 feet, there will be 680 plants to the acre, yielding, according to the above estimate, 42½ gallons of nectar. But usually more than one stalk in a hill blossoms and matures fruit annually. The blossoms used were below those that produce fruit, which later, I am told, are much richer in honey.

Bloom of banana

Banana stalk in fruit.

"The first blossoms which open mature fruit. These vary in number from 25 to 100, according to quality of land, cultivation, etc. They sell here at from 1½ to 2 cents per finger or pod. Estimating fruit at 25 fingers per bunch and the bunches at 25 cents each —which, you see, is a low estimate for both, the result will be a barrel of nectar on $170 worth of fruit per acre. How does this showing compare with other cultivated plants as combined honey and money crop?"

## Uniting Bees

By J. F. Diemer

IN giving the system which I use in uniting bees, I caution the beginner, or those with little experience, not to get the bees excited in looking for the queens, as this will be sure to give trouble. Efficiency is

Gallberry in bloom.

the result of experience. Reading won't give a man experience, but is of great help to all of us. There are many things that I don't know about bees, but I know a great deal of their language and how to mix them without their fighting.

It is as necessary to know how to unite bees as to know how to divide them when in need of increase. I will tell my way in as few words as possible.

In the spring of 1918, a yard of 55 colonies was reduced to 25 very strong by uniting. This yard was arranged in the "four-in-a-group" plan, two facing east and two facing west, back to back. All the queens were caught, caged and removed, each colony reduced to one story and pried loose from its bottom so as to be lifted up without jarring. The next day each pair that faced in the same direction was united, by carefully lifting one and gently setting it on top of the other brood-chamber. A queen was introduced, via the candy route, at the same time.

The extra five colonies were carried from 10 to 20 feet and their best combs divided up among the other colonies.

While carrying one of these colonies, my foot and a big rock had a head-on collision, which started a big roar in the hive. So it was set back on its own bottom till it got quiet again.

If there is any robbing going on, don't try this, for it won't work. All depends upon the bees being quiet, no excitement and no robbing. It seems to me that some people use too much smoke. I use very little at any time, and none when there is a honey flow.

One of my neighbors has a hive of bees. One day he pried the cover of the hive and jarred their nerves. Those bees went "over the top" with bayonets ready. He blew a lot of hot smoke in their eyes. They got excited and flew around, crawled out of the hive, on the ground, up his pants legs, and he got stung and got hot, and after six hours looking for the queen he gave it up and quit. The bees were still hot the next day, when I went to his place and found the queen on the first frame I lifted out.

Moral.—A nice quiet beeyard. Everybody attending to his own business. No one blowing hot smoke in anybody's eyes. This is the time to mix them up.

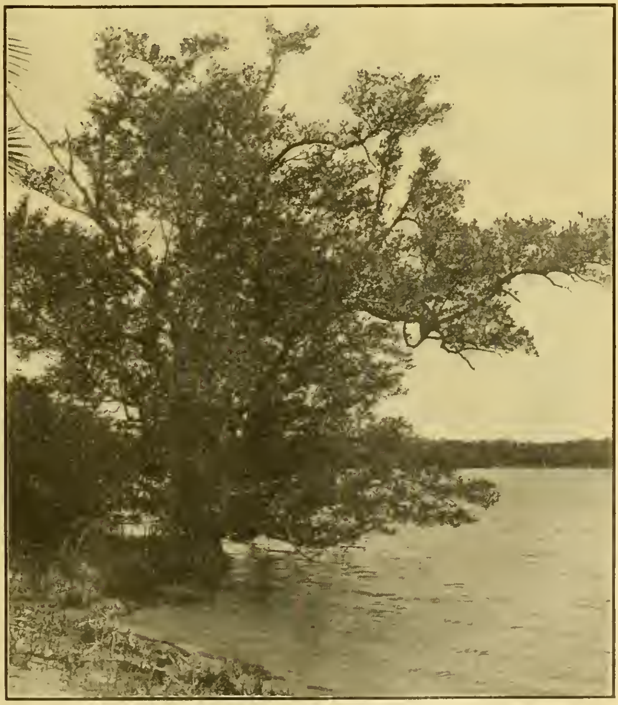
## Making Big Hives From Small Ones

By W. C. Rossinck

I HAVE become very much interested in the articles in the American Bee Journal on larger hives. The great question that confronts me is, how can I get them the cheapest when supplies are so high? Last December I bought some new 10-frame (Langstroth) double-wall hives, for I am highly in favor of them, even though I winter my bees in the cellar, because the weather here in Michigan is too changeable in early spring; but since I want a larger hive, I take the frames out of the original brood-chamber and place a No. 1 super, 10-frame size, on top of this brood-chamber and use the top and bottom-bar of the Langstroth frames with new end-bars 14¼ inches long throughout, and nail these up to hang in this super, piercing six holes in each of these end-bars for wiring. Then I take 1½ sheets of foundation and lay these on the table or bench before me, just lapping the two edges about one-eighth of an inch, and run over these edges with a hot little piece of iron, melting the two into one large and nearly square sheet, and put this into the frames. This foundation then reaches within 2 inches of the bottom-bar.

This spring, when the queens commence laying in a few of the center frames in their old hives I expect to lift out these frames with bees, put on my No. 1 super and put about 7 of the 10-frames and all the bees back into this super and then scatter three of these new deep frames between them. Then, as the bees draw out this foundation, I will keep taking out the old Langstroth frames and placing the new deep frames in their place. Thus the expense is very small and I can continue using all the old supers for extracting.

Besides, I also think that this deep frame will suit the queen better than any other, owing to the fact that a queen always likes to lay in a circle.



Typical Black Mangrove tree in South Florida.

and these frames will give her a more perfect and larger circle to lay in.

However, I am going to try it on some hives this spring, and I am not much afraid that it will not work out well, but if I make any more of these frames I shall have them cut to the right size by the manufacturer, and will order the foundation 12 inches wide. Why not have a larger hive at such a small expense?

The inside dimensions of these frames are 13¼x16¾, or 222 square inches. This makes a 10-frame hive some larger than a Dadant hive and an 8-frame hive a trifle smaller than a Dadant hive.

If any try this plan, I shall be glad to hear of their results. Criticisms invited.

Fremont, Mich.

(The only fault we can find with this economical trial of large hives is the hanging of foundation 2 inches shallower than the frames. The bees may build drone comb in that 2-inch space. It would be better to cut the foundation of the proper depth. But foundation of such depth may be more difficult to make and it may sag still more than the same goods of ordinary depth. However, these things can only be known by actual trial.—Editor.)

Wild Pennyroyal in bloom.

---

## Bees by Parcel Post

By Allen Latham

THE pound package business has the promise of a big future, both for the man producing the bees and the purchaser as well. If, however, the future is to give all it promises, or more, it is imperative that the package of bees reach its destination in such condition of health and vitality that a vigorous nucleus can be started with the same. It is arrives with half the bees dead and the remaining half largely devitalized, the resulting nucleus will only be a source of annoyance and expense.

Some solar plexus blows have in the recent past been given to this method of building up an apiary, and more than once the count has nearly reached ten. It is the purpose of this article to make plain the cause and offer the remedy.

For many years the idea has prevailed that bees and other insects require and use up much air. Witness the innumerable instances of shutting an insect into a pasteboard box and then punching the cover full of holes lest the poor insect suffocate. In spite of the fact that many a successful bee tree has offered evidence to the contrary with its tiny knothole, the only opening to the home of the bees, the belief has prevailed that bees consume air at an enormous rate. Years back the writer became convinced that bees, while quiet use an extremely small amount of air, and on one occasion wintered a colony sealed in a packing case. I therefore make unhesitatingly this statement: Bees normally require a very small amount of air.

The former belief led to the making of shipping cases with walls of wire-cloth. This appeared logical, and if the theory had been correct would have yielded uniformly good results. Practice soon proved the contrary, or shall I say proved that something was wrong? In looking for the error we find that it is only under stress of excitement and undue activity that bees use much air. The suggestion even arises that the presence of much circulation may, on occasion, react upon the bee to cause excessive activity. Even if the exposure does not cause increased activity, it is certain to lead to the greater consumption of food. Bees must eat to keep warm and if cool air is blown through their prison they eat excessively. Then, if not before, restlessness will come upon the bees, for much food consumption under such conditions leads inevitably to a congestion of the system that creates in the bee an inordinate desire to get out into the free air. Hence the poor bees struggle to get out of their prison, and their struggles do not end until death or the opening of the prison doors bring relief.

In an effort to counteract the evil resulting from the excess of exposure those seeking a remedy recalled the quieting effect of spraying water upon a newly clustered swarm. Was it not logical to spray these imprisoned bees to keep them quiet? Logical according to the immediate premises, but a most atrocious conclusion because of an undistributed earlier premise. Bees in a clustered swarm are one set of bees, those imprisoned in a cage are a different set of bees. Like many a remedy in human ills, the relief was only temporary, and the final effect of the medicine was to make the patient worse. The poor bees are wet and chilled. They can get dry and warm only by licking up the water. This calls for further consumption of food and in a short time their restlessness is worse than ever. Added to that, their intestines are full of water, and soon their condition is similar to that of bees dying from dysentery in winter. Even before the sprinkling, the bodies of the bees were surcharged with water from excessive food consumption, and their jailer adds to their misery by the sprinkling. Is it anything to wonder at, that the package of bees arrives at its destination with half the bees dead and the remaining bees with barely life enough to crawl about in their prison?

It must be borne in mind, whenever one seeks to diagnose a difficulty affecting bees, that bees and human beings ore not in the least alike. Insects and mammals are so far removed in biology that a remedy for one may be a poison for the other. It is highly probable that bees possess no respiratory glands at all akin to our own. That they possess in a high degree the ability to eliminate water is perfectly obvious, but eliminating water and getting rid of it are two different things. Only two ways are open to the bee, one is by respiration and the other by expulsion of the bowels. The first is achieved only by excessive activity and heat production, the other only in a cleansing flight. The imprisoned bees cannot adequately use either of these methods, and must suffer and die. If we are to find a remedy for an evil affecting our bees let us first of all cease to have any idea that bees and human beings function alike.

It will be seen from what has already been written that success in the shipment of bees by package must lie in the conservation of bee-energy, not in its waste. In every possible way we must keep the bees quiet. How, then, can we keep the bees quiet?

In answering the question just put, I would follow the same channel of thought that has led to the solution of so many other bee problems. As Dr. Miller would say, take it to the bees. So I will ask another question: Under what conditions do bees keep quiet? Is not the answer, When darkness and health are both present?

Miss Brown, after work is done.

Acting upon this mental deduction I set out a few years back to devise a shipping-case for the bees in which darkness was the first consideration. For two seasons this case has been in use by me, and its use has been attended by phenomenal results. Such statements in the letters from my customers as follow are not uncommon: "There was not a dead bee;" There were not to exceed 25 dead bees in the entire ten packages;" "The bees were so quiet that I thought they were dead until I opened up the package." This cage or shipping-case is under process of patenting and will soon be put upon the market. In a later article the case will be described, accompanied by photographs of the same. For the present I will merely say that the case is made of wooden walls instead of wire-cloth. The bees can get air as they desire it, but no currents of air strike them, and **no light.** Ninety-nine per cent of the bees remain quietly clustered, a few only are always seeking an exit to the outside world. During the trip small patches of comb are built and the queen is usually laying in the same.

The number of bees seeking an exit depends very largely upon how the bees are put up. If only young bees are caged, very few bees are restless during the journey. Old bees should never be put in with the others. The writer has every confidence in this shipping-case, and predicts a prosperous future for the pound package. With this case in use one can rest assured that the packages of bees will arrive in perfect shape, barring accident. Accidents we cannot control, but with this cage we need only to be certain that proper food and proper bees go into the case in order to feel assured that the buyer will be pleased with the goods upon their arrival.

Norwich, Conn.

## A Lady Expert With Bees

I have just returned from a trip to one of the other islands, where Miss Mae Brown (who has complete charge of our queen breeding and requeening operations) was in the act of requeening 2273 colonies of bees. I stayed with her watching the process for nearly five weeks.

In five days after she arrived at the apiaries she had put queen-cells into seventy-one colonies of bees. The queens had previously been removed from these seventy-one colonies, and they accepted 941 buds of the lot that she put in. To take care of these 941 queen buds on the 9th day, or before the young queens emerged, required a great deal of work in searching out and killing old queens, etc. However, she began this work two days earlier with her usual staff of four Japanese men, and it was a real pleasure watching them work. Through the whole process they were striving to outdo each other in finding queens, while Miss Brown kept her note book and scissors on hand. The note book contained data on each of the old queens and it was necessary to make some new entries for future use, while the scissors were used for clipping the wing of any queen that should need it. In this way she was able to examine an average of 350 queens per day, as well as introduce the buds as they came along on the ninth day. In the meantime extra buds had been put into these first mentioned 71 colonies, as she required several hundred additional cells to complete the work. She generally kills 50 per cent of the old queens so that all are requeened every two years.

Most of these young queens were laying when I left the work. As she was searching for these young queens to examine their condition and clip their wings before closing up the lower box, or brood-nest for the year, I had the pleasure of seeing as fine a lot of young Golden Italian queens as it is the lot of man to see.

Just before leaving for home I had Miss Mae Brown stand with her four Japanese men while I took a snap shot of them. Inclosed you will find a copy of the same.

E. C. SMITH,
Honolulu, T. H.

(Queen buds is a term used in Hawaii for queen-cells.—Ed.)

## Bees to Japan

1. Can I take a few Italian queen bees to Japan in May? It takes 17 days for the voyage.

2. Will you tell me how I should pack them? R. H. W.

Los Angeles, Calif.

Answer.—The dealers in bees and supplies sell "long-distance mailing cages" at 10 cents each. These are provisioned with candy for the trip. Put a queen in each and place with her a fair number of bees, enough to occupy the cage without crowding. The bees to take for that purpose are bees that are active field workers, but not too old. Old bees are recognized by their shiny looks. The young bees have more hairs and look fuller. Take them as they come home from the field and you will be sure not to make a mistake. But if you are acquainted with bees, you may take them from the inside of the hive. You should make sure that you do not take young bees that have never yet had a flight.

For the transportation, keep them in a place where they will have warm air, not below 65 degrees; no light, no disturbance. Do not handle them any more than you can help, and when you reach your destination introduce them to colonies as early as possible. We have kept bees a month in this way, with very little loss. If the candy is so dry that they cut out particles of it and it falls out of the cage, moisten the cage slightly with your finger wet with water. Otherwise do not give them any water; they do not need it, when their food is of the proper consistency. Water is needed only for brood-rearing.—C. P. D.

Miss Brown and four Japanese assistants

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

Published monthly at Hamilton, Illinois.

Entered as second-class matter at the postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

C. P. DADANT ........ Editor
FRANK C. PELLETT ........ Associate Editor
C. C. MILLER ........ Questions Department
MAURICE G. DADANT ........ Business Manager

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

### Bees as Trophies of War

The "Revue Francaise d'Apiculture," of Marseille, is authority for the statement that the Military Administration of Germany offered for sale a large number of colonies of bees **taken** from the invaded countries. A man of the name of Herter, of Heilbronn, Wurtemberg, stated that the Wurtemberg Beekeepers' Association had thus secured 300 colonies at the prices of 28 marks for skeps and 54 marks for movable-frame hives. This Mr. Herter had secured two colonies, one of which perished in the trip, but the other one was for him a "dear souvenir of the war."

We trust the Beekeepers' Association will be able to deny this statement.

### Refrigerated Queen Losing Her Fertility and Regaining it

Concerning the possibility of chilling a queen so as to partly destroy the fertility of the spermatozoids in her spermatheca, Mr. Marius Barthelemy, the capable director of the Experimental Apiary of the French "Societe d' Apiculture des Bouches-Du-Rhone" at Marseille, France, sends us the following account of an experiment:

"I introduced to a queenless colony a young queen which had been laying normally in a nucleus of three combs for several days. The introduction was performed at 1:30 p. m., by dipping her in a little honey which had been diluted with a tablespoonful of cold water. The operation succeeded fully and the queen spread her laying rapidly. But after three weeks, while examining the colony, I found upon 7 combs a tremendous amount of drone-brood, extending to about nine-tenths of the total. This was all in worker-cells, as there was not a single drone-cell in those combs. Having allowed the queen to remain, in order to exhibit this peculiar case to my colleagues, I later noticed a decrease in the amount of drone-brood and a corresponding increase in the number of cells occupied with worker-brood, especially at the upper edge of the combs. I removed the queen and placed her in a nucleus where her laying gradually returned to normal conditions. The introduction of a normal queen in the drone-brood colony soon brought things back to ordinary conditions.

What do you think of this abnormal drone-laying in a healthy queen? Is it not probably due to the refrigeration which the queen suffered when I dipped her into cold sweetened water? It seems to me that this is well proven by the fact that the bees of the nucleus from which she was originally taken managed to rear another good queen from the brood that she had left behind and which also produced healthy workers. I am glad to call this to your attention, as it is the first case of this kind that I have ever witnessed."

"Marius Barthelemy."

This is interesting and of some importance in its bearing upon the possibility of destroying the worker-laying capacity of a queen through cold. Messrs. Dzierzon, Berlepsch and Mahan had also destroyed the life of spermatozoids in the sperm sac of queens, by refrigeration, as mentioned at paragraph 151 of "The Hive and Honeybee"; but in the cases mentioned by them, the queens had become to all appearances permanently injured. The above case shows a temporary injury, from which the queen recovered, probably because the action of the cold water had not been as thorough as in the cases mentioned by these experimenters. Let us avoid chilling our queens by dipping them in cold solutions or exposing them to low temperatures.—Editor.

### Warning to Italian Beekeepers

In "L'Apicoltura Italiana" for February, the noted queen breeder of Bologna, E. Penna, warns the Italian beekeepers against any importation of bees from beyond the Alps into the peninsula of Italy, since the Italian race of bees is prized everywhere, and its purity is of great value.

We believe that the beekeepers of the entire world will join him in this warning. Although some other races have proven good, such as the Carniolan and the Caucasian, the Italian bees are the only race, of gentle disposition and great activity, whose purity may be easily ascertained in the color of the bees. A slight mixture of the common black bee will show itself immediately in the progeny, while a slight mixture of the black bee in the Carniolan or the Caucasian gray bee will go unnoticed.

Mr. Penna lays great stress upon the value of the Italian bees as better able to withstand the Isle-of-Wight disease and the bacillus pluton (also called European foulbrood and bacillus alvei, Cheshire) than any other race known. In this country we know but little about the Isle-of-Wight disease, but it is well-known that the introduction of young Italian queens in colonies suffering of European foulbrood has often, if not always, helped to cure the colony.

### Porto Rico Beekeeping

The industry of beekeeping, which was reported as in its infancy in Porto Rico in 1911, by circular No. 13 of the Porto Rico Agricultural Experiment Station, is progressing fast. Mr. Elton Warner, who has spent most of his life in Mexico and Porto Rico, gave up a very lucrative position in the U. S. Government employ, in the island, in order to take up beekeeping. Mr. Warner now has some 1,500 colonies in Porto Rico, as well as some 500 in North Carolina. The writer met him at Ithaca and found him full of enthusiasm, for after a few years of trial, Mr. Warner knows that an independent life is sure to be the reward of the progressive beekeeper.

### The Revived Belgians

Many among our readers have had occasion to feel the pangs of anxiety and incertitude over the fate of some of their friends or relatives in the terrible conflict which is hardly yet closed. We had a feeling akin to this incertitude concerning our Belgian beekeeper friends. The editor of the "Rucher Belge," a publication of 25 years standing and one of the most advanced in Europe, disappeared in the abyss of the German invasion at the very beginning of the war. His home and the Association which his magazine represented, the "Society of Apiculture of the Basin of the Meuse," were at the very spot of the opening of hostilities, in the vicinity of Liege, where the atrocities of the invaders were most marked.

Letters to them brought back no replies, and we thought them dead. Imagine our pleasure in receiving the following a few days ago, from this same editor, Mr. A. Wathelet:

Prayon-Trooz, Jan. 2, 1919.

Dear Mr. Dadant: We are at last freed of the bandits. In April, 1915, I received your excellent letter of August, 1914. The sentiments which you expressed in this letter gave us the hope that the noble Republic of the United States would do what she actually did—save us from starvation and deliver us, as well as the rest of Europe, from the Huns.

I cannot clearly express the gratitude which we feel towards the United States for this. It is also impossible to describe our sufferings during those 4 years.

My family is in good health. Two of my three sons served in the army and are also safe, as well as my nephews. We are now better nourished, we have bread in sufficiency and are no longer compelled to eat turnips, beets and rutabagas. But clothing, footwear, etc., are still at unapproachable prices. Let us hope that within a few months everything will become normal.

None of our bee magazines have appeared during the war. Even now print paper is scarce and out of reach. We do not know when we may again begin the publication of the "Rucher Belge" (Belgian Apiary.)

If you can spare me the missing numbers of the American Bee Journal, you will please me greatly, for I have received none since August, 1914.

You should be proud, dear Mr. Dadant, of your native country, as well as of your adopted country. You cannot have an adequate idea of the enthusiasm with which the Allies are welcomed here, as they pass through to occupy the country of our invaders.

Accept my best wishes for you and all your people.

A. WATHELET.

### Does the Jellow Jasmine Poison Bees?

On page 500 of the American Bee Journal for November, 1879, Mr. J. H. Brown, of Augusta, Ga., makes the following report:

"In some sections of the South, particularly on light, sandy soils, there may be found some Yellow Jasmine (**gelseminum sempervirens**). As its flowers possess very decided toxical properties, it is not a very desirable plant to have within the range of bees. It blooms after the alder. While our native black bees are very seldom seen working upon it, the Italians, in some seasons, will work upon it quite briskly. I am inclined to think, from close observation, that it is mostly pollen they gather from it, though in some seasons it does yield some honey.

"I have more particularly named this plant because of its poisonous effects upon young Italian bees immediately after taking their first meal. For the past nine years I have observed, commencing with the opening of the Yellow Jasmine flowers, a very fatal disease attacking the young bees and continuing until the cessation of the bloom. The malady would then cease as quickly as it came. The symptoms of the poisoning are: the abdomen becomes very much distended, and the bee acts as though intoxicated. There is great loss of muscular power. The bee, unless too far gone, slowly crawls out of the hive and very soon expires. When examined, the abdomen seems to be distended with a sort of serous looking fluid. The deaths in twenty-four hours, in strong stocks with much hatching brood, may amount to one-half pint, often much more.

We are much interested in knowing whether the nectar gathered from this plant is really the cause of this disorder. We wrote to Mr. T. W. Livingston, of Norman Park, Ga., and asked his opinion. His reply follows:

"I have for many years noticed the bee disease described, and was out among the bees yesterday where there was much Yellow Jasmine in bloom. I saw a very few bees working on the bloom, more bumblebees than honeybees, and saw several colonies affected slightly with the disease peculiar to this time of the year. In some cases the bees do not swell up and in others they do. Some have a trembling motion, and others are stupid and can scarcely move. I have seen the same disease where there was no Yellow Jasmine that I know of, but much more of it where that plant was plentiful. It may be caused by it. I was told several years ago by the Florida State Chemist, who had analyzed a sample of honey that had poisoned some people, that the honey contained pollen from the Yellow Jasmine, in which he found the poison that had done the damage."

We would be very glad if readers living where this plant is common, would write us whether they have made similar observations. We are anxious to secure some further information regarding the possible poisonous properties of the Yellow Jasmine to the bees.

### Texas to Experiment

We are much pleased to announce to our readers that the Texas Legislature has made a liberal appropriation for the establishment of experimental apiaries, under the direction of Prof. F. B. Paddock, State Entomologist, of College Station. A trained man will be placed in charge, and extended work will be undertaken looking toward the solving of the special problems of beekeeping in the Lone Star State. Beekeeping is very highly specialized in Texas, and we look for some most excellent results to come from this experimental work. We would like to see experimental apiaries in charge of capable men established in every State where beekeeping is an important industry, and hope that the time will not be long until such a result is achieved.

### Honey Prices

Just now, when the market prices for all commodities are rapidly falling, it is well for the beekeeper to bear in mind the importance of developing the home market to the limit of its capacity. During recent months, because of the restrictions of the food administration on the sugar supply, many new uses have been found for honey, and many people have become accustomed to its use who have not previously been in the habit of buying this particular product. The removing of the restrictions of the food administration, again places honey in direct competition with sugar and other sweet products. It will be necessary for beekeepers to resort to active measures to advertise honey, and stimulate its use in every possible way, if good prices are to continue.

If every beekeeper will cultivate the home market to the limit of his ability, prices will be stabilized. War time prices cannot be expected to continue, neither should prices drop to the low levels of recent years.

## You Can if You Will

By F. Eric Millen

Of all the beekeepers in this country there are relatively few who are securing a maximum crop of honey each year. In some cases ignorance is the cause, in other cases neglect, and the majority of beekeepers would probably have to be classed with the neglectful, because ignorance is, usually, the twin brother of neglect. There are no excuses for any of us keeping bees these days unless we have the requisite knowledge with which to run them profitably. Beekeepers can secure, without cost, sufficient information from Government and State Bulletins which will enable them to learn the fundamentals of beekeeping practice However, we usually find those beekeepers who are interested sufficiently to secure beekeeping bulletins also realize that a few dollars invested in other good beekeeping literature is a good investment.

Why is it that we do not produce larger crops of honey? I believe the answer is that we lack the interest and have too little ambition. Why do we lack interest and ambition? Because in so many cases our Creator and nature have been and are too kind to us. With little effort we can secure enough of this world's goods to live and we remain satisfied. Often it takes some serious happening to bring out the best part of our make-up.

In 1911 Mr. Harvey E. Nicholls, the subject of this article, an Iowa beekeeper, had the misfortune to lose both legs in a boiler explosion. Figure 1 shows us that our friend has lost the right leg near the thigh, but has the use of the left knee joint. This accident happened when Mr. Nicholls was 21 years of age, and many of us would probably have given up the fight and have been content to live on charity. Not so, however, in this case; the loss of his legs gave him the impetus necessary to make life successful, and while before the accident Mr. Nicholls' ambitions were small, he soon realized that life was ahead and that he had to make good.

A legless man who is a successful beekeeper.

A legless beekeeper who drives an automobile

In 1915 he secured a swarm of bees and, although he secured no honey that year, the bees were carefully prepared and packed outside for winter. Early in the 1916 season a good book on beekeeping was purchased and this book was studied in conjunction with the manipulation of the colony. Frequent visits were also made to successful commercial beekeepers living in the vicinity, and much information was freely given from this source.

At the close of the season Mr. Nicholls had 80 pounds of honey surplus and had wisely refrained from making increase. Slow but sure. The single colony was again packed and wintered well. Nineteen seventeen opened and three more colonies were purchased and transferred from their old hives into standard 10-frame hives. Two 2-pound packages of bees were secured from the south and two other colonies were worked on half shares. During the season Mr. Nicholls worked for the Western Honey Producers, assembling beekeeping supplies and worked with the bees at odd times. The close of that season found our friend with twelve colonies and a crop of 400 pounds of honey. The twelve colonies were wintered successfully.

The twelve colonies, together with two more purchased, were moved five miles from town in the spring of 1918. Besides the aforementioned fourteen colonies, forty-five more were worked on shares, for half of the surplus honey only. Work at the supply factory was discontinued, except at odd times, and the bees received the required attention. A second-hand Ford was purchased, on time, and the apiary and town made easily accessible.

The fourteen colonies were increased to twenty, and the forty-five on shares increased to eighty-five, this being a part of the agreement when the bees were taken in hand. A man was hired for six days, during the season, to help lift the heavy supers into the Ford and assist with other work in the apiary.

From May 1 to September 9, 1918, the returns from the bees, together with the odd work amounted to just over $800. Just look at Fig. 1 again and then one can imagine under what apparent difficulties Mr. Nicholls worked. I say apparent, because our friend did not stop to say "I can't," or "impossible," but went ahead and made the undertaking a success. You can if you will.

Figure 2 shows how it is possible for Mr. Nicholls to move around from place to place as he so desires. An artificial leg fitted to his left limb enables him to drive his Ford just as easily and surely as any of us with two sound legs, and distance is no object to our friend.

Mr. Nicholls has not only made a good start to become a successful beekeeper, but at the age of 29 he is putting himself through high school, another very creditable feature. Although just making a start in life, our friend believes in tithing and gives 10 per cent of his earnings to charitable purposes, besides this last summer a sister and grandmother were partially supported.

When I secured this brief history I realized that some of our soldier boys home from the war, who might be partially disabled, may be interested in knowing what Mr. Nicholls has accomplished. We cannot all be beekeepers, but we can be useful citizens. To those of us who are beekeepers this article should certainly awaken the desire to succeed, and you can if you will.

Iowa State College, Ames, Ia.

## Robbing

By C. P. Dadant

> "They were in truth great rascals, and belonged to that class of people who find things before they are lost." Grimm.

No, bees are not great rascals, although they sometimes "find things before they are lost." But this is due to their great industry.

There is hardly a text-book published on beekeeping, at the present day, that does not have a chapter upon robbing and how to prevent it.

Nevertheless, the editor of a bee periodical often receives enquiries like the following, which is typical of the beginner:

"I have a neighbor who has a larger number of colonies than I have and his bees rob mine. What shall I do to prevent it? I tried moving the robbed colony to a new spot, but it does not seem to help matters."

We have known novices to become angry at their more successful neighbors because their bees were being robbed apparently by a joint action of more powerful colonies. Yet, as in the destruction of colonies by the moths, the fault is with the owner of the robbed bees. Here again, we have to repeat Oettl's Golden Rule: "Keep your colonies strong."

A weak colony is not necessarily in danger of robbing, if the number of combs which the bees have to guard is in proportion to the size of the swarm. If we have small colonies, made by the building up of nuclei, or the hiving of late swarms, we can protect them, or help them to protect themselves, by reducing the number of combs in proportion with the size of the colony and using a dummy to reduce the space.

It is good policy to strengthen such colonies, as early as convenient, with brood and bees from more powerful ones.

Let us say to the beginner, once for all, that it is a mistake to believe that the different colonies of a large apiary will unite to rob those of a smaller one. But after a colony of bees has lost its courage and has given up defending its stores, the bees of any other colony in the vicinity may join the robbers.

It is very important to avoid robbing, not only by reducing the combs of a weak colony to such space as they can easily defend, but also by having each colony supplied with a good queen. The entrances should not be too large, but only of such size as will readily accommodate the passage in and out of the workers.

Above all things, no honey or sweets should be exposed where they may entice bees to rob, in time of scarcity. Accidentally, a door may remain open in the bee house, or a case of honey may be forgotten where the bees have access to it. As soon as they find the desired sweet, unprotected, they set to work to remove it to the only safe place they know—their hive. The arrival of loaded bees, to the hive, is at once noticed; whether they have means of telling each other, or whether the odor of the plunder is sufficient. We incline to the first surmise. Bees can tell each other many things, as do the scouts of the swarm who have hunted for a new home. The alarm is soon given to the entire colony and the air becomes filled with hunting workers who are looking for the treasure. Any practical beekeeper can tell, at a glance, when his bees are finding unexpected wealth, as they fly about and hunt in every nook and corner where the least odor attracts them.

Can we blame them for this? It is their nature to carry home everything which is undefended. After a little practice, even defended stores will draw them. Do they find that stolen sweets, like stolen kisses, are always sweeter? No, for when there is honey in the fields they are not attracted by stored sweets, and seem to prefer the nectar of the blossoms to anything else. Only the inveterate, shiny, aged robbers, who have carried on the practice for a number of days, will hesitate between nectar and strong-smelling honey in the combs.

How to prevent robbing? Never by removing the robbed colony to a new spot. It goes without saying that, when you remove a colony to a new spot, you lose its field bees. But you do not lose the robbers, who are here, there and everywhere, ready to enter any crack that will give them a passage. If the robbed colony is worth saving, a very good way is to exchange its location for that of the robbing colony, provided both belong to the same apiary. The robbing colony may be found easily by sprinkling a little flour over the robbers as they emerge from the robbed hive. The behavior of the robbers when their home is suddenly placed in the spot of plunder, is ludicrous. They are entirely routed, and when they go back to the old home spot, where they find the robbed colony, they defend it with as much alacrity as they employed in robbing it.

If the robbers do not belong to the owner of the robbed bees, the safest way is to close the robbed colony and remove it to the cellar, putting an empty hive in its place. The empty hive will serve the purpose of amusing the robbers who waste their time hunting through it. Otherwise, they would perhaps try to rob the next colony, especially if they are in great force.

It is a mistake to handle bees and open hives when robbers are about in any number. If you **must** do it, then reduce the entrance to a very small space, close the hive as soon as possible and throw fine grass loosely over the entrance. A bunch of grass, through which the bees of the hive must crawl to reach the open air, is soon filled with guards and any robber that comes near, in the hurried, guilty way so common to them, is soon apprehended and taught a lesson. This will do very well, where robbing has just begun.

If a colony is carried to the cellar to stop robbing, it is important not to have any robber bees in it, for as soon as it is returned to its stand those bees will begin their pillage again. So every robber ought to be liberated before the hive is removed. If it is not very strong in bees, a few young bees from a colony of pure Italian bees may be given it a day or so before it is brought back to the light again. These young bees, who have not been demoralized by the robbers, will usually act as guards when the hive is brought out again, and will do short work with the robbers, unless the latter present themselver in great numbers.

Take notice, that Italian bees usually defend themselves very much better against robbers than either black or hybrids. Being less excitable, they run about less, and watch more. That quality alone would make Italians worth while.

Is it necessary to call the attention of the novice to the similarity of action between the robber bees and the young bees who are taking their first flight out of their home? In both cases they fly about to reconnoiter or recognize the spot. A pious old monk of the past century, the Reverend Babaz, called this "making the sign of the cross" in front of the hive. in the case of robber bees, this action might have been likened to that of the Calabrian brigands, who, before the liberation of Italy, some 75 years ago, used to make the sign of the cross to protect themselves against the possible defensive action of the travelers whom they ransomed. The robber bees are heavy with honey, as they fly out of the plundered hive, while the young bees taking their first flight are not loaded, and disport themselves with good grace and peace.

A great incentive to robbing is found in disjointed hives. When top stories and covers have been pried open many times for apiary operation, they finally gape at the corners. This attracts idle bees in times of scarcity. A little clay mixed with water closes such gaps effectively for the time. Personally, we use telescoping covers to avoid this annoyance.

"An ounce of prevention is worth a ton of cure."

## About Inspection

By Charles D. Blaker

I HAVE read with a great deal of interest the article entitled "Force of Education," appearing in the February issue of the American Bee Journal. I do not think that anyone will feel disposed to disagree with Mr. Pellett concerning the importance of the educational side of the work of the inspector of apiaries. And perhaps in some cases the inspector has been given more power than is altogether wise, but when he proposes to "make the office a purely educational one" I must dissent. I maintain that education, as important as it is, is not sufficient. Speaking of hog cholera in comparison with foulbrood he says, "that the owner's financial interest in the hogs should be sufficient to give the matter his attention." However true that may be in the case of hog raisers we know that very often it is not true in the case of beekeepers. For instance how often we find a man with one or more colonies who is too busy with other matters to give his bees proper attention, and who would not clean up unless there was a law having teeth in it that compels him to do so. Within a mile of him there may be a beekeeper who has hundreds of colonies of bees. Should we not have a law that would protect the financial interests of a man who has invested hundreds of dollars in bees?

If the inspector is not to be "the sole judge as to whether or not disease is present" pray tell who is to be the judge? Who is the judge in the case of glanders in horses or tuberculosis in cattle if not the officers designated by the law? To say that "under such a law healthy colonies of bees may be destroyed with no protection for the beekeeper," is no more true than to say that healthy horses and cattle may be destroyed with no protection for the owners under the laws now prevailing for the control and suppression of diseases among horses and cattle.

The comparison of the apiary inspector to a policeman who "is only called when you have committed a crime or are suspected of malicious intent" is, I think, an unfortunate one. Also it implies that the rank and file of beekeepers are a rather ignorant lot of people. My experience leads me to believe that not one person out of a hundred holds any such view of the inspector when he appears at his place, and if the man is possessed of a little ordinary common sense he understands the situation when it is explained to him by the inspector. During the four years of my experience as inspector we have met with serious objection from less than one half of one per cent of the owners of all the apiaries examined in the State during that time, and only one of these objectors could be classed as among those who look upon the inspector as a "policeman," and this poor fellow was mentally deranged, having formerly been for a little while an inmate of an insane asylum.

Surely every one will agree with Mr. Pellett when he says, "What does it profit to burn up one man's bees and leave a similar condition across the fence untouched?" But the remedy for such a condition is to change the inspector, not the law. The question touches only on the incompetency of the inspector and has absolutely nothing to do as to what the law in the case should be. All officers are expected to perform their duty, but in case one fails we do not immediately begin to agitate to have all authority taken away from the office.

I am not inclined to disagree with what Mr. Pellett says in opposition to a quarantine law if he means a "quarantine against the sale of honey from infected **areas.**" But Minnesota has a law that quarantines an infected **apiary** so that the owner can not "sell, barter or give away or remove to another location without the consent of the inspector any bees, honey or appurtenances from an apiary known to be infected with contagious disease, etc. My deputies have instructions to always give consent to the sale of the honey after notifying the owner to be careful not to allow it to be exposed where bees can get access to it. I could relate many instances where this section of the law which forbids the sale or removal of bees, hives, combs, etc., from an infected apiary without the consent of the inspector has been a very great help in the control of the disease in this State, and I am very sure that the beekeepers of Minnesota would not agree for a moment to have this section or any other section of our law repealed.

When Mr. Pellett says, "The question has been discussed with many of the most successful inspectors and all have been disappointed in what they have been able to accomplish under these laws," does he mean to imply that "all these inspectors" believe that it is best to "make the office a purely educational one?" If this is the case, we ought to know it, and know the reasons why they do. If we are going to have a discussion regarding the laws necessary for the control of foulbrood let me suggest that it be along constructive lines rather than along destructive lines. It is very easy to tear down but not so easy to build again. I think we should go very slow in the wholesale condemnation of the present laws. Why not consider one thing at a time as for instance the quarantine law. Again conditions may so differ in the various states that what is a good law for one state might not be equally good for another. Let us go slow, fellow beekeepers, before we pull down what has taken so much work to construct.

Minneapolis, Minn.

## The Other Side of the Question

A Reply to Mr. Blaker

MR. BLAKER has evidently overlooked the point of the article which he criticises. Had he read carefully the closing paragraph he would have noted that I do not propose to do away with the law which requires the proper attention to diseased colonies, but to leave the enforcement of the law in the hands of the officers whose business is law enforcement. The foulbrood laws were designed to protect the beekeeper, and to centralize too much authority in the hands of one man is to create a greater danger than is offered by disease. It should be the business of the inspector to locate disease and prescribe its treatment. It should be the business of others to enforce the law. The inspector should be an educational officer.

A recent number of the Western Honeybee made the statement that European foulbrood and **unwise inspection** had reduced the number of colonies in one California county nearly 50 per cent. The writer has heard it charged in some cases that healthy bees have been destroyed by the inspector. The law gave the beekeeper no protection in such a case. There are cases reported where bees were destroyed by an inspector to get them out of the way of somebody's range. Whether these things have happened or not, it is plain enough that they might easily happen under authority of present laws. There is no reason why the laws might not be so drawn as to give the beekeeper full protection in his property rights as well as from his neighbor's disease. I maintain that under the laws now on the books in several States it would be easily possible for a misguided inspector to ruin the beekeepers in his territory, and if reports are correct this very thing has happened in many cases. The beekeeper needs to be protected against an incompetent inspector as well as from disease.

FRANK C. PELLETT.

## Use of the Hydrometer in Commercial Beekeeping

By Isaac Hopkins

AT your request, I am pleased to furnish you with some particulars of the use now made of the hydrometer in New Zealand beekeeping, and its advantages. In times past, and even at present in some countries, beekeepers have largely depended upon "rule of thumbs" methods for deciding important questions in connection with their business; purely guesswork, in which the results might or might not prove correct. Take, for instance, the tests I have seen advocated in a leading bee journal for deciding as to whether a sample of liquid honey is ripe or not. They were given in all sincerity and practiced by some in the absence of a more reliable method. One was to nearly fill a clear glass with the honey to be tested, leaving an inch or two of air space below the cover or stopper; turn the jar quickly upside down, and according to the rate at which the air bubble ascended; so the ripeness or otherwise of the honey was determined. Another plan, and this was advocated not long since in a bee journal by a not obscure beekeeper, was to test the honey for its viscosity or stickiness between the thumb and finger; if very adhesive it showed good condition, if otherwise its ripeness would be doubtful.

Now, it could never have occurred to these advocates that the temperature of the honey would make a big difference. On a cold day, the honey being denser than on a warm day, the air bubble would ascend much slower, and the viscosity would be greater, so that by either of these tests the same honey might be judged as ripe or unripe, according to the temperature of the honey when tested.

Then, again, in the making of honey vinegar, it is commonly recommended to test the strength of the liquid by putting an egg or sound potato in it; when the egg or potato floats showing a small disc above the surface it is strong enough; if they sink more honey must be added. The same test is advocated for honey mead, but as the strength of the liquid needs to be greater, a larger disc of the egg or potato must show. These tests are more or less guess work, as on the size of the disc the amount of honey in the liquid depends. The least variation in size of disc makes a big difference in the calculations.

Now, there need be no guess-work at all with regard to honey, vinegar or mead; hydrometer tests will give absolute accuracy in each of them. Honey tests are the most important and here is where the hydrometer is of the greatest value. Some 30 years ago, when handling large quantities of honey from different sources, I received a great deal of it in liquid condition. In that state I could not judge accurately whether it was thoroughly ripe or not, nor can I to this day judge correctly liquid honey by its appearance. I may give a fair guess, but that is not enough. Several lots eventually fermented, most of it being the product of a family of very careful beekeepers who, I was confident, would take every care to avoid sending out doubtful honey. It may be said that if he honey had been all sealed before extracting there would have been no trouble, but I am not so certain of that. I have seen at different times the opinion of experienced beekeepers expressed that the sealing or capping of honey should not be implicitly relied upon always as an indication of thoroughly ripened honey. Be that as it may, I became fully satisfied at that time that some method within the capability of the average beekeeper to apply was needed to accurately test any given sample of honey without risk of mistake. It occurred to me that if the minimum specific gravity of the general run of honey produced in the country, would be discovered below which fermentation would take place sooner or later the object would be accomplished.

The opportunity for making a sufficient number of tests for the purpose of setting a standard did not occur till I joined the Department of Agriculture. In all I made some 250 tests between 1907 and 1912, experimenting with honey gathered in different seasons and from all sources. The result was I came to the conclusion that any of our honey of a specific gravity of 1.420 or over would not deteriorate under ordinary circumstances in any length of time. To test by time I put by samples of tested honey in glass jars (60 in all), some from each season from 1907 to 1913, when I resigned.

Last year (1918), when I saw them the honey was as good as ever. The minimum specific gravity of 1.420 is now officially accepted by the government honey graders, and the New Zealand Co-operative Honey Producers' Association, and no honey of a lower specific gravity is allowed to be exported or is accepted by the association.

In making honey vinegar, instead of the egg or potato tests for strength, the hydrometer should be used, and the same for honey wine-mead. The specific gravity of the liquid for vinegar of 1.040 contains 1½ pounds of honey, and that for mead 1.115 4½ pounds. The vinegar liquid of above specific gravity develops over 5 per cent acetic acid, quite a strong, fine-flavored article

Commercial beekeeping has so far advanced that we should discontinue the "rule of thumb" methods and adopt more accurate scientific measures. It should be mentioned that "Twaddell's" hydrometers are used, and the honey or other liquids should be as nearly as possible at a temperature of 60 degrees Fah., or 15 C.

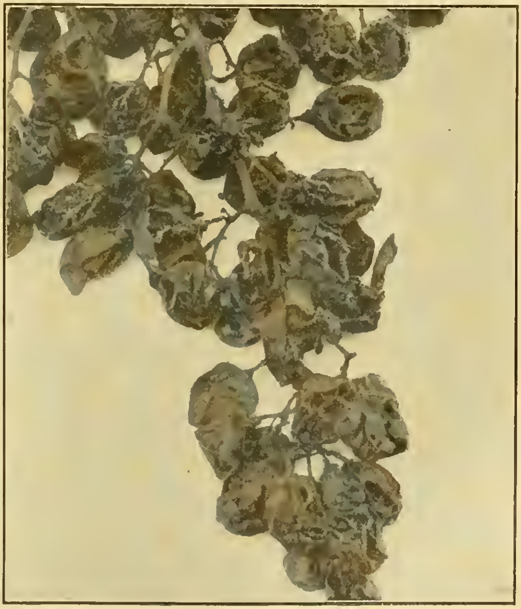
Auckland, New Zealand.

---

## Bees and Grapes

There has been more or less friction between the beekeepers and grape growers for many years. In wet weather the grapes often crack open, and when this happens at a time that there is little nectar in the field, there is likely to be trouble. When natural honey sources are scarce, the bees will suck up almost any kind of sweet product. At such times they often swarm over the vineyards, sucking dry the fruits which have cracked open. It is a well-known fact that bees will not injure sound fruit, but the grower is usually inclined to hold the bees responsible for the entire injury, since their work is so apparent.

In Southern California raisins are grown in large areas and hundreds of acres of raisin grapes are grown for the trade. Rains are not usual at the time the fruit is being dried. The grapes are spread out in thin crates which are piled one above another in the open field. Now and again a light shower damages the fruit seriously. The photograph shows the result of such a wetting and the work of the bees afterward. All the juice had been extracted by the bees, only the empty skins and seeds remaining. While this fruit juice is stored by the bees as honey, it is of poor quality and of little value to the beekeeper.


Raisin grapes that have cracked open after being wet. The juice has been sucked out by the bees.

## The National

THE National Beekeepers' Association held its 49th annual convention in the East Room of the Hotel La Salle on Tuesday, Wednesday and Thursday, February 18, 19 and 20. This meeting immediately followed the Northwestern Association meeting which was very well attended.

The meeting was presided over by B. F. Kindig, in charge of apiculture at East Lansing, Mich., the president. David Running, being unable to attend on account of sickness.

The program was very interesting and kept the attention of the crowd which was in attendance. Professor Francis Jager gave a very interesting talk on "Beekeeping and the New Era," and also gave a very fine talk on European conditions.

Miss Iona Fowls, of Gleanings in Bee Culture, gave a very interesting and instructive talk on "Pushing to the Front in Beekeeping." This was followed by a paper given by Colin P. Campbell, president of the Michigan Affiliated Beekeepers' Association. His talk was for a stronger organization among beekeepers and the paper read by him later caused a resolution to be presented on this subject.

Dr. E. F. Phillips gave some very valuable information concerning the "Factors Influencing the Secretion of Nectar," although the doctor was unable to explain just why plants yielded honey on some occasions and did not on others when conditions were apparently the same. The convention had the pleasure of hearing Mr. W. H. Hall, connected with the Bureau of Markets, Chicago, Ill. Mr.

Hall gave full information as to how the market reports were gathered and assured the beekeepers present that anyone who desired the reports could get them by simply writing to the Bureau of Markets at any of the cities in which such bureaus are located, or to the main office at Washington, D. C.

Prof. F. Eric Millen, in describing beekeeping as seen by a bee inspector, gave one an idea of the troubles and difficulties met by the bee inspector and showed very plainly that education is essential for the eradication of bee disease throughout the country. The fact that beekeepers are not acquainted with disease and means of its eradication is the prime cause for the spreading of foulbrood.

Perhaps none of the speakers attracted as much attention as Charles B. Justice, General Manager of the California Honey Producers' Cooperative Exchange. Although this organization has been in operation but a short while, there is great promise for what it will do for its members. Mr. Justice is an enthusiastic man and, without doubt, there is bound to be a steadying of the honey market through the efforts of his organization.

Kenneth Hawkins gave a talk on "Beekeeping in Dixie." Mr. Hawkins was in the employ of the Federal Government for nearly three years and covered something like 21 states doing extension work for the Department at Washington. Although Mr. Hawkins is no longer connected with the department, he is still closely in touch with it and gave valuable information as to general beekeeping conditions in the south.

Professor H. F. Wilson, of the University of Wisconsin, talked to the meeting in detail, the way in which organization of local beekeepers' societies was accomplished in Wisconsin. Through him, as well as through Professor Millen and others, the call for more education among beekeepers was sounded.

"International Beekeeping," a paper by C. P. Dadant, was read before the Convention. Professor E. G. Baldwin gave a lecture on "Extension Beekeeping, Fact or Fiction?" Professor E. G. Baldwin, who is connected with the Purdue University at Lafayette, Ind., has met with great success in organizing county beekeepers' associations, and devoted as he is to the work, he feels certain that the organization of beekeepers throughout the United States must come through the small associations located in counties under the regular Federal organization.

During the meeting, the resolution was passed calling for a representative meeting of beekeepers at Kansas City, Mo., in January, 1920. The purpose of this meeting will be to reorganize the National, either by amending the Constitution or changing it, or perhaps by adopting an entirely new Constitution. The discussion during the meeting tended to show that the majority was dissatisfied with the present status of the National and wished to improve it. A minority report, however, was brought in by two of the committee who felt that with the present machinery of the National, sufficient work could be accomplished if the right officers could be found to do the work. The motion, however, was carried, and the Secretary was instructed to call a meeting in Kansas City in January, 1920.

The best part of the National meeting came on the morning of the second day, when Doctor Miller appeared at the convention room door. To say that he was enthusiastically greeted is putting it too mildly. Dr. Miller and Miss Wilson were with us but a short time, but their presence rounded out the gathering as nothing else possibly could have done.

The officers elected for the ensuing year are as follows:

President—B. F. Kindig, Michigan.

Vice President—Miss Ada Sly, Michigan.

Secretary-Treasurer—Chas. B. Justice, California.

Executive Committee—David Running, E. S. Miller, Floyd Markham, Mrs. Cora Polhemus and Dr. A. C. Baxter.

L. C. DADANT.

## Rendering Wax

By C. T. Ohlinger

OLD combs and pieces of wax that accumulate during the honey season, when honey is cut out of box-hives and bee-trees, can be rendered into marketable shape without extensive apparatus. The things necessary for a good job are two or three pails, preferably sap buckets that don't leak, a piece of burlap cut from a fertilizer or feed sack, a half dozen clothes pins and two floor boards, 3 inches wide and 3 feet long, hinged together at one end with a piece of leather, to be used as a press. If the boards have tongue and groove they must be shaved off so that no wax can run into them.

A home made wax press.

In order to get every bit of wax we scrape the walls of the hive and the frames with a sharp knife clean to the wood. The combs and scrapings are crushed into one of the pails until about half full. Rain water, or soft water, is now added, just enough so that the pail will not boil over when on the kitchen stove to boil. Frequent stirring helps to separate the cocoons from the cells of the comb and thus more wax is gained. We try to use as much water as possible in order to get a bright and clean wax.

When the combs are all dissolved and boiling hot, the piece of burlap is pinned over the second pail as a strainer, and the whole mass poured into this pail. The ends of the strainer are now gathered into one hand while another person slips the boards around the bag thus made, gradually pressing the contents while the bag is being twisted until no more wax can be squeezed out. The remaining slum-gum is carefully scraped from the strainer, which is now used for the next batch. When the weather is cool and the bees are not flying we set the pails containing the strained wax anywhere outdoors, at other times they go into the cellar until the wax can be removed from the pails.

Angelica, Allegheny, Co., N. Y.

## Hive Size and Comb Capacity

By Arthur C. Miller

THE accuracy of Quinby's observations and the soundness of his deductions are, after nearly seventy years, slowly being recognized. His hive size and comb capacity are being adopted by a steadily increasing number of beekeepers. To be sure, some wise ones, like the Dadants, the late Captain Hetherington and some living New York State beekeepers have long used the Quinby hive, or its equivalent, the "Jumbo."

It is not necessary here to recite all the history of the teaching and practices of the manipulative school of beekeepers, like Heddon, Hutchinson, Doolittle and others who thought to force and crowd the bees into the supers by taking away and transposing hive-chambers or parts, or to force an increase in population by "spreading the brood." I recently heard one of the fairest minded and best posted beemen in the United States say that that manipulative school had done untold harm to the bee industry. The shallow Langstroth hive was urged particularly to force the bees to put their honey into the supers and the Danzenbaker was merely an exaggeration of the idea. In the train of such outfits followed all sorts of plans to increase and stimulate brood production. Feeding and feeders became a mania and a necessity. The preaching and practice of some who fed a little daily to stimulate a natural flow reminded one of the ancients who pushed in through the diminutive entrance of their hives a split alder stick with the pith removed. The contents of that tiny trough was thought sufficient for a colony of hungry bees. Not so far different from the few ounces now sometimes advocated as daily food. This putting man's labor in the place of bees' labor may gratify the pride of some folks, but personally I prefer to let the bees work for me, and not me for them.

Mr. Quinby and his disciples believed in giving the bees sufficient room to rear, provision and house a goodly population, and while keeping an eye to the surplus yield, they believed in letting the bees store and keep a full larder. That well-stocked larder is one of the important factors in making and keeping the colony strong. That store of honey in the brood-nest acts on the colony as does the "governor" on a steam engine; it keeps the operation steady and uniform to meet the varying load.

One thing which engaged Mr. Quinby's earnest attention was the size of the hive brood-chamber. All writers of his and earlier days were widely at variance and he found it necessary to make his own observations and deductions. The size he settled on was approximately 18x15x11 inches inside, and his frames were 18x11 (fractions omitted) and spaced 1½ inches between centers. And this size is used by the Dadants, and the Jumbo frame is, for all practical purposes, the same.

Just now there is again a discussion of hive sizes, comb area, etc., and with the light which the investigations of Dr. Phillips and Mr. Demuth and their associates have shed on the internal conditions of the colony in winter, together with their discoveries on the heat-producing methods and digestive limitations, we have undisputable evidence on which to work. It should result in dissipating some of the erroneous opinions and prejudices we now hold.

To realize that there is a wide recognition of the need of large brood-nests we have but to look at the increasing use of Jumbo hives and the advocacy of two Langstroth chambers. But the latter practice has its disadvantages, for it gives too much comb area, and in the wrong direction, also it calls for much of that expense article "manipulation" and much increases the capital invested.

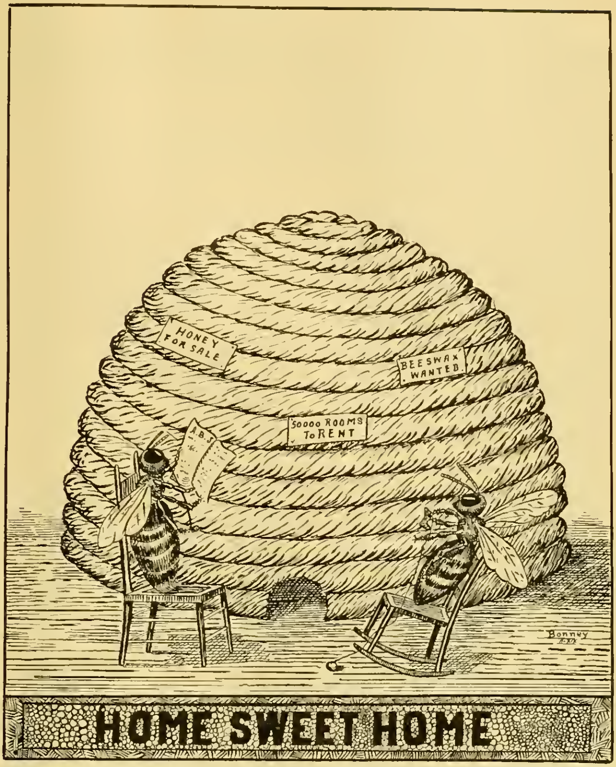
As to comb areas and capacities the following figures are instructive. Assuming a frame full of worker-comb the cell numbers of different sized frames are as follows:

An L has 6,700, 10—67,000, 20—134,000.

A Jumbo has 8,500, 10—85,000, 20—170,000.

But there is another point beside the number of cells, to-wit, the storage capacity (cubic inches) for food, and there is a great difference in this respect between combs spaced 1⅜ inches between centers and those spaced 1½ inches. When combs are used for brood they are the same thickness (seven-eighths of an inch) regardless of spacing, but when used for stores, thickness increases as spacing increases.

The following table gives a fair approximation of the storage capacity of combs.



An "L" spaced 1⅜ has 117 cubic inches.

An "L" spaced 1½ has 134 cubic inches.

A "Jumbo" spaced 1⅜ has 149 cubic inches.

A "Jumbo" spaced 1½ has 170 cubic inches.

It will be well to keep in mind all numbers (brood capacity) and cubic inches (storage capacity) when considering sizes, spacing and numbers of frames and whether you will use two stories, or single stories and wider hives.

And if you are going to experiment with wider hives let me make a few suggestions which may save you a lot of loss. Make your hives wide enough so you can keep outer combs one-quarter inch away from hive sides. When not so offset, the outer surfaces of the outer combs are rarely used for brood, and will hold but half, or less, of the normal amount of stores. In other words, one whole comb is sacrificed. A good general rule to determine hive width is to make the inside width **one inch** wider than the aggregate width of the frames to be used in it, measuring the frames when **new.** Soon after the bees occupy the new hive the frames begin to swell and later propolis is stuck in. Strips of wood one-quarter inch thick are nailed on inside of one side opposite where edges of end bars come. That offsets comb from hive-side properly. Super springs, or similar springs, are used at opposite sides, and soon it will be found that the space on the side where springs are will be little if any more than one-quarter inch. Hundreds of hives so arranged have for years given entire satisfaction.

I realize that there is still held by many beekeepers an idea that thin combs operate to increase brood and force honey into supers. This is one of the evils inherited from the teaching of the manipulative school. You cannot **force** bees to do anything against their instincts, and even if their instinct is to put brood in shallow cells and honey in deep, remember that it takes lots of bees to raise lots of brood to gather a full crop. Quinby knew that, and the principles he laid down have stood the test of time. Coupled with the conditions of complete winter rest and maximum brood production in early spring, as enunciated by Dr. Phillips, we have what amounts to an almost new bee culture.

Say it this way: Big hives, big comb capacity, big winter rest, big colonies and big crops, and big bank accounts—if you know how to sell and all pull together.

Providence, R. I.

## Sagging of Foundation

By J. E. Crane

In regard to foundation sagging, we have no serious trouble when it is properly wired horizontally. We have used some ten to fifteen hundred sheets of light-brood foundation each year for the past four or five years.

One cause of the foundation comb sagging is insufficient ventilation or allowing the hive to stand in the hot sun. This will cause all kinds of comb to sag. Another is in placing the wires too low in the frame. Factory made and wired frames, as I have observed, are wired at about equal distances from top to bottom of frame. I took the matter up with one of our largest manufacturers some years ago, urging the desirability of placing the wires near the top of frames, but received little encouragement. I suppose they look better when wired away to the bottom. I visited an intelligent beekeeper last week in the northern part of our State who uses light section foundation in shallow extracting frames without wiring or sagging.

We used, I think, 1,000 frames of light brood foundation in Langstroth frames with three horizontal wires the past year in extracting supers, a pretty severe test, and they are as handsome a lot of combs as I care for. No, if one will place the wires at the top, or near the top, of the frame, where the strain comes, there need be little trouble with sagging. Of course, the wires should be drawn firmly into place.

We must aim at the trouble if we expect to hit it.

A fine, mild winter we are having, with snow enough so far to keep the ground covered most of the time.

Middlebury, Vt.

(This is plain, solid, common sense. In building their combs naturally, the bees finish the top rows before extending all the way to the bottom. But when full sheets of foundation are given them, they are apt to overload them before finishing the cells that are near the top, although the entire load is carried by the upper 15 or 20 rows of cells. So the wires that help to carry the load should be placed as near the top as convenient. One wire near the bottom is sufficient to prevent the sheet from warping. It is also very useful to have the wire imbedded, and we know of nothing better to do this than the electric imbedder.—C. P. D.)

## The Hearing Sense of Bees

By A. F. Bonney

In almost—I may as well say all—advance in knowledge, we argue from what we know to what we do not know, and this discussion regarding the sense of hearing in the bee will apply; while some argue from what they do not know to an erroneous conclusion. However, that is a common error, and needs but be corrected.

Because man hears we infer that other animals do also. That the vertebrates do allows of no discussion, for they have well defined organs adapted to the purpose. In the vertebrated animals these organs are complicated in structure, having, in the higher forms of life, an external ear; a meatus or sound canal ending in a drum membrane, the tympanum; then a cavity containing three small bones called the anvil, hammer and stirrup; then there are the semi-lunar canal and the labyrinth, and finally the tube extending from the ear apparatus to the throat, the eustachian tube, and this is as essential to hearing as any of the other parts, for if it be clogged no air can pass from the ear to the throat cavity, and the hearing is impaired. In the insect family there is no connection between the mouth and the breathing apparatus, as insects breathe through small tubes called trachae on either side of their body; hence we cannot argue from what we know about man's hearing apparatus to what we do not know about the bee; and further, we do not even know that there be any necessity that the bees hear. They have a wonderfully developed sense of smell, and, I have reason to think, as keen a sense of feeling, and I am sometimes inclined to think that, as hearing depends on vibration of the air, there would be no such thing as sound if there was no ear to hear it.

Now feeling depends on vibration, both of the air, the conducting medium on which we stand, and the vibration of the nerves of the body, and it is possible that, the bee being as sensitive to such vibrations as to odor particles in the air, feeling takes the place of hearing. However, in "Animal Life," by Lindsay, I read that Dr. Sharp, of Cambridge, has described their (the ants') "stridulating," i. e., noise-producing organs, and Mr. Lindsay alludes to the sense of hearing in ants as "a fact." Other insects make noises, and it is theorized that they are for the purpose of attracting members of the opposite sex, but what I have said above may apply here.

We know that the bees have different "voices," as the contented "homing hum," the sharp "buzz" of anger or excitement, the sound the queen makes at certain times, and as there are notes pitched so high that the human ear cannot take cognizance of them, it may be that the bees produce other sounds inaudible to us.

Just recently a new sense has been discovered in the human, through the use of the flying machines—the "motion sense" of aviators, which enables them to maintain equilibrium without the aid of vision. I once knew a man who could balance himself on the two rear legs of a chair and read aloud from a newspaper. A thousand trials failed to enable me to balance myself even ten seconds. Try it.

I have caused a shotgun to be discharged within ten feet of a hive where the bees were numerous on the alighting board, but failed to detect in them any indication that they heard the sound, while a very slight tapping with finger nail on the hive would excite them. I have yelled myself hoarse, but the bees paid no attention to me.

In our present state of knowledge I assume that it is safe to say that we do not know whether bees hear or not, and it affords an interesting field for study and observation.

Buck Grove, Iowa.

Home of Edwin Hutchinson, Avon, N. Y., paid for by 65 swarms of bees in four years. In addition, the bees bought some Liberty Bonds and furnished a living for two.

## Mating Queens Over Colonies

Referring to the article on page 57, February number, "Mating Queens Over Colonies," I wish to say that I have had as good success mating queens over colonies as with some of the other methods. It is possible that it was due to good luck and awkwardness, rather than to the method used.

As a beginner, I have produced some excellent queens by various methods, and when ready to place virgin or ripe queen-cell over a colony I paid no particular attention to putting up frames from the lower brood-chamber, but put up frames containing brood in every stage of development.

In choosing and preparing my hive

for mating purposes, I select a strong colony, having one or more section supers, in which the bees have commenced to work. On top of these I place a honey-board, on top of this I place what I call a "mating bottom," which is made in the following manner: Make a frame to fit the hive, dimensions of which are 1¼x⅞ inch. On the bottom of this frame I tack a sheet of tin, covering three-fourths of the frame; bore two or three half-inch holes in the back end of the frame, and for the entrance tack a piece of tin bent at right angles below these holes for alighting board. Over this put your brood-chamber with the brood frames and virgin or ripe queen-cell, and in due time you will find a laying queen.

I have mated two queens in the same brood-chamber in this way and would also get the frames filled with honey, which was extracted, or could have made a new colony strong enough to winter well.

I would like to mention another experiment which I have tried. The idea is not original with me, but I have never seen it in print that I remember of. I have seen the time when I wanted to graft some queen-cells and had no royal jelly. I have used a mixture of water and honey, well mixed, used the same as royal jelly and had 87 6-10 per cent of the cells accepted and 85 per cent were finished and were as well developed queens as I ever saw.

I have been in the bee business since 1918, but have done nothing but try experiments, and try to do what the other fellow has done, and more.

L. A. Shawler,
West Union, Ill.

## Treatment for Foulbrood

A western subscriber requests that we specify briefly the latest treatment advocated for American and European foulbrood. Briefly stated, for American foulbrood is to remove the bees from the infected hives, destroy all comb and remove all honey, and placing them in an entirely new and clean hive, as one would treat a new swarm. The essential operation in the treatment of this disease is to remove the bees entirely from all sources of the contagion. It is especially important that no honey from the diseased colony is allowed to reach the bees in healthy colonies. The old hive and frames may be used again if thoroughly cleaned before coming in contact with the bees.

With the European foulbrood it is not necessary to destroy the comb. The important thing, with the European foulbrood, is to have the colony strong and to check breeding operations for a period of time until the bees have had opportunity to remove the infected material. It is usually advisable to re-queen the colony with selected Italian stock from some well-known disease-resistant strain. To be successful in the treatment of the European foulbrood the colony must first be strong and the brood-rearing must be checked for a period sufficient to enable the bees to clean up.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

### Average Yield, Per Colony

Would like to ask C. P. Dadant the following questions, to be answered through the American Bee Journal:

1. What has been your average yield of extracted honey per colony for the past 20 years, if these figure are available? If not the 20-year average, would like the 10-year average; and, if not too exacting, list the last 10 years by each year. My reason is to see by comparison with the weather of Illinois Bulletin issued by the Illinois Experiment Station just what season proved the best regarding rainfall.

2. Will a wet August and September, following a dry summer, with a liberal amount of rain the following spring and summer, produce a very good crop of white clover?

3. What conditions do produce the best crop of white clover?

ILLINOIS.

ANSWERS.—1. We have been rather lax in keeping accounts of our crops. We should make statistics. But business and the hurry of each day seem to prevent us from doing a thousand things that ought not to be neglected. The best I can do is to give a rough guess of our crops one year with another, and this I would place at about 40 pounds per colony.

Drought is the worst enemy we have. The coming summer is likely to prove unprofitable to bees on account of last summer's drought that killed nearly all the white clover about us.—C. P. D.

2. Very likely

2. A winter that will not kill out the plants, preferably one with a good blanket of snow, in northern localities, the ground having been well filled with moisture in the fall; then enough rain and warm weather for luxuriant growth up to the harvest; hot, sunshiny weather during the flow, with a tendency toward drought toward the middle of the flow. Other factors, such as electrical conditions, no doubt should be considered.

### Wintering—Transferring—Flax

1. I have the 10-frame hive of Hoffman frame and I am thinking of putting a shallow super filled with leaves on top of this and winter them out of doors in a winter case. Do you think this would be all right?

2. I have one colony in an 8-frame hive in which the combs are crooked, and I am going to transfer them to a 10-frame hive. When would you think it would be the best time to transfer them, before swarming or after? Would the bees go into the new hive all right?

3. Is flax a honey-plant?

WISCONSIN.

ANSWERS.—1 Yes; but protection at sides and bottom would still be needed.

2. In fruit-bloom is a good time. There will be no trouble about the bees going into the new hive if it is set on the old stand.

3. I think it is, but not a very important one.

### Cellar for Bees

1. I am planning on building a honey-house with bee cellars underneath, size 16x26 feet. Do you think that will winter 150 colonies?

2. Will dig into side of bank and will have cellar all below frost line; cement walls and floor, and want to ask if you would have ceiling made of cement or wood; some say wood will rot.

3. Would you put in ventilators, and if so, what kind?

Would appreciate any other information that you can give me on this subject.

Am planning on leaving an air space between ceiling of cellar and floor of honey-house and packing with cut straw.

NEW YORK.

ANSWERS.—1. Yes, you will need to pile them only four or five high to accommodate 150.

2. Cement will last longer than wood, although wood ought to last many years.

3. It doesn't matter such a great deal as to the kind of ventilator, whether of wood or metal; but it is important that the one to let in the air be low down, and that the one which carries out the air should be fairly high at the outside. If the ventilators be 6 inches in diameter they will probably be larger than will often be needed, but you can close up all you want to, and if the diameter be too little there is no way to enlarge it. If the earth is sandy and you leave an earth floor, little ventilation may be needed.

### Frames—Queen Rearing

1. Can an apiarist make frames for his own use; for instance, the Hoffman frame?

2. Would a young queen likely be mated from a drone of the same hive?

3. Would it be a good time to raise a queen in fruit blossom time?

4. How many cells would a colony of strong bees be able to handle? Could they finish them, or should they be given to another colony above an excluder, with queen below?

5. Should honey be extracted as soon as capped, or left a while to ripen?

6. Which bee has been known to work on red clover the most?

7. How many days will it take for a queen to hatch from a very young larva.

IOWA.

ANSWERS.—1. The frame is the one thing about the hive that needs most exact workmanship and special machinery, and without this last the most expert mechanic would hardly think of making his own frames.

2. Small chance for it if other bees are within a mile.

3. Hardly, as a rule too much cool and catchy weather.

4. I suppose it isn't so much a question of what they can do as what they will do. Some colonies will mature 50 or 100 cells. others 10. There would be no likelihoods of a greater number being finished by changing them to an upper story.

5 Generally it is considered ready to extract as soon as sealed, although leaving it longer on the hive will make it a little richer.

6. I don't know. Claims have been made that this one or that one excels; but none too much is known about it. Likely there's more difference in clover than in bees.

7. If you mean larva just out of the egg, about 12 days.

### Marking Queens, Wintering, Etc.

1. Have you had any experience with, and what do you think of, the plan of painting the back of the queen to facilitate finding her, as described in the January number of the American Bee Journal, page 21?

2. Is the Demuth method of packing bees for outdoor wintering a success? Will you please tell us just how the frames are rigidly held on end so as not to topple over?

3. After a Demaree super has been given in case of a prolific queen, would it not be a good plan to *again* move the brood above after the lapse of a few weeks, in order to give the queen abundance of room?

In wintering bee on the summer stands do you think there is any advantage in placing another hive-body between the bottom-board and the brood-chamber? As I use the Demaree plan, I have plenty of hive-bodies that I could use in that way, either with or without the frames of drawn comb.

MICHIGAN.

Answers.—1. I have had no experience in the matter, but have read a good deal about it. and have confidence that queens thus marked are much more easily spotted than queens not marked. There are two reasons for thus marking queens. One is that you may know the age of a queen. I don't need to mark a queen for that purpose, since my book tells me the age of a queen, and I can tell the age of a queen any time of the year without opening a hive, unless the queen has been superseded, and I can tell that by her whole wings. If I lived in Switzerland, however, I might think it worth while to mark queens for the sake of finding them more easily, for there they prefer black queens, and they are harder to find than Italians.

2. I have never tried it, as I cellar my bees, but from the testimony of others it seems quite a success. I don't know whether any means are used to keep the frames rigid, but should hardly suppose it necessary. I have sometimes set the hive on end, and there is no danger of the frames toppling over unless they are turned beyond the perpendicular.

3. It might be a good thing in some cases, but usually by the time a second shift would be made the queen has slackened in her laying so that she has enough room.

4. I think there would be advantage in it. With an entrance a little above the bottom-board there would be no danger of the entrance being blocked with dead bees, and there would be the advantage, probably an important one, that the cold wind could not so easily reach the cluster.

### Re-Queening—Increase

I have about 25 colonies of bees, black and hybrids all in 8 and 10-frame Tri-State hives, and I want to Italianize them all this spring and make some increase by introducing queens and 1 or 2-pound packages, with three or four objects in view. First, to get Italian stock. Second, to have them strong when the white clover flow opens Third, to control swarming, and to work with the object in view of getting rid of all unnecessary drone-comb in the future.

I had thought of following this plan (close to the Demaree plan): I will take one hive, to illustrate, a hive that is strong at time of apple blossom, or later as you would advise. I will take one frame of brood (or two, as you would advise) out of old hive, place it in a new hive, fill up with full sheets of foundation and place old hive on new hive on old stand. with queen-excluder between; leave till time to introduce packages and queen. Then move the old hive to a new location and from 24 to 48 hours (as you would advise), hunt out old queen and introduce the packages with queen into old hive by liberating in empty super with perforated cardboard on bottom, with small opening in center for them to enter brood-chamber below. How soon would it be safe to introduce a new queen in the new hive that was left on the old stand? Or should I not want to Italianize them, would they readily receive the old queen after being without her 24 to 48 hours; and would it be necessary to destroy all queen-cells in introducing by this plan. ILLINOIS.

I'm not sure that I am competent to advise about a plan I am not acquainted with, but I'll try. You do not say whether you will leave the queen above or below the excluder at the time the excluder is given, but I suppose you will leave her below, and I wouldn't leave more than one brood with her; and unless the colony is very strong in fruit bloom you will do well to wait till the blooming of white clover. It will be well to wait 48 hours before introducing the new bees into the old hive on the new stand, and it will not be necessary to use the super and cardboard, for there will be only young bees in the hive. and the new bees and queen should be directly received. Still the extra precaution will do no harm. But in the other hive more precaution is needed. Either 24 or 48 hours after the old queen is removed the new bees with the new queen may be given, and your cardboard may be used ,although a newspaper will answer. Brush off all the bees from one or two frames of brood; put these in an upper story over the cardboard or paper and put the new bees and queen on these combs. After being absent 48 hours, the queen could be safely returned without killing cells.

### Floors—Increase

1. Would concrete be all right for a honey-house floor? If not, why would you object to it?

2. What is your method of running a colony for comb-honey production.

3. What is the best method of artificial increase and yet secure a crop of honey.

4. Would Italians and Carniolans crossed be a good cross? ONTARIO.

....Answers.—1. I don't know from experience, but I should suppose it would be all right.

2. To give even a brief answer to such a question would be beyond the scope of this department, but in my books you will find in detail just how I manage when running for comb honey.

3. "You cannot have your cake and eat it, too," and if you make increase you must count on a smaller honey crop, unless in a location where an exceptionally heavy crop comes late. However, you may make increase and get a seasonable crop, and perhaps you might like the Alexander plan. When a colony is very strong, put all but one brood in a second story, leaving one brood with the queen in the lower story, with an excluder between. Kill any queen-cells that may be present and fill all vacancies with frames of foundation. In 5 days, if you find queen-cells started in the upper story take it away and set it on a new stand, leaving it to raise its own queen. If the colony is not of good enough stock to breed from, then all cells should be killed at the end of 5 days and the upper story of brood left over the excluder 5 or 6 days longer. It should also be left 5 or 6 days longer if no cells are started. At the end of this time, that is, 10 or 11 days from the time of the first operation, the upper story should be set on a new stand, and 24 hours later a laying queen should be introduced, or else a virgin or a ripe cell.

4. Yes; but I should prefer pure Italians.

### Increase

1. Last spring a second hive-body was put on a stand of bees. This spring they will be strong enough to divide. Is it preferable to introduce a new queen into one stand when they are divided, or to allow them to raise their own queen?

2. About what time should they be divided?

3. A swarm is to be transferred from a box-hive. Your statement in "Thousand Answers," page 253, edition of 1917, would indicate there would be no queen in the old box at time it was broken up three weeks after the swarm issued. Is this correct? KANSAS.

Answers.—1. You are assuming quite a bit when you say they will be strong enough to divide. You gave them a second hive body, and it is possible that both stories will be occupied in the spring, but more likely only one, and *possibly* that one may not be half full. At any rate, when you do divide there will be an important gain to give the queenless part a laying queen rather than to let it rear its own queen.

2. Wait until about the time colonies begin to swarm naturally in your locality, or until the opening of white clover, and not then until the colony is strong.

3. Oh, yes; there will be a young queen in the old hive, but you will pay no attention to that. If, upon uniting, the young queen is killed, it will be all right, and if the young queen kills the old one, that will likely be better still.

### Royal Jelly—Foulbrood

1. From what is royal jelly made, and can it be made artificially?

2. Describe American foulbrood, also the difference between American and European foulbrood.

3. What is the most effective way to introduce queens?

4. What do you think of Mr. C. B. Bankston's queen mating nuclei? Do you think it as effective as the baby nuclei? VIRGINIA.

Answers.—1. The bees make it of honey and pollen, somewhat as a cow makes butter out of grass; but I don't think it can be made artificially.

2. The outstanding symptom of American is that when you thrust a toothpick into it and draw it out the dead matter will string out in a thread an inch or two long. In European the dead larva has a yellowish look.

3. Perhaps as good as any is the usual one of caging the queen in the hive in such a way that the bees will let her out of the cage in 3 or 4 days.

4. I do not recall just what it is, but I would expect that anything C. B. Bankston uses would be good.

### Moving Short Distance

I have 26 colonies of bees which I desire to move a distance of about 50 yards to a shed which I have prepared for them. Now, I do not wish to do anything that will cause a very great loss of bees and thus work against my honey crop.

How and when can I move them with the least loss of bees?

Is it best to move them after a confinement of a few cold days, or had I better wait till nice, warm weather?

Will there be danger of their drifting very much?

I have owned bees ever since I was a little boy, but never had experience in moving any even a short distance. KENTUCKY.

Answer.—Don't wait for warm weather, for the longer they have been flying the worse they will be about flying back to the old place. Put a board in front of each hive entrance after you put them on the new stands, and before you open the entrance of a hive pound good and hard on the hive, so as to get the bees to roaring. That will help to make them mark the entrance and the new location. There ought to be no great trouble about drifting. In spite of your precautions, some bees will likely return to the old location. To catch these let a hive containing combs with a little honey, or else empty combs, be set in the old location, and each day, as long as the bees keep returning, let the bees be brushed from the combs in front of any hives in the new location.

### Packing for Winter

1. To winter bees out doors in central Indiana, how would it do to place hives on a platform in a row, covering them with tar paper cover all over except the entrance, and over the top place tin to shed the water?

2. Would you leave the hives as close together in the summer? INDIANA.

Answers.—1. To pack in that sort of wholesale way would be less expense and labor than to winter in smaller groups or singly. and this obvious fact could not fail to have been suggested to anyone studying the problem. The fact, however, that it has not generally been adopted is pretty clear proof that experienced practitioners do not consider it a very satisfactory way. One trouble is that the bees would be likely to enter wrong hives.

2. By no means. There would be too much mixing of bees from different hives.

### Spacing Frames—Sweet Clover

1. Do the Dadants use the wire spacer at the bottom of their deep brood-frames? Are they necessary?

2. How could I fix my Hoffman frames so they would space 1½ inches from center to center? Would you advise me to use the staple-spaced frames for 1½ inch spacing?

3. Should I use something to keep the enamel cloth from touching the frames? What could I use?

4. Would two division-boards, one on each

side of the cluster, be sufficient protection in spring (I winter my bees in the cellar) in northern Michigan?

5. Are the unspaced frames very much in use?

6. If I use a screen bee-escape board on top of the super and raise the hive cover one inch for ventilation, would that be too much?

7. Could I get the Dadant or the unspaced frames and space them 1¼ inches from center to center with staples at top and bottom?.

8. If I use a wooden barrel to make a honey extractor, will the wood affect the honey in any way?

9. Along the east shore of Lake Michigan, where I live, there is a steep bank about 200 to 300 feet high. Between this bank and the lake there is a narrow strip of land about 100 rods wide which is heavy clay ground where red clover and wild peas grow. Would sweet clover grow here, and would the bees go the distance of a mile to get the nectar?
MICHIGAN.

Answers.—1. Yes, they use them, but they are not essential.

2. You can use staples or shingle nails.

3. When enamel-cloth is used it is supposed to rest directly upon the top-bars. I prefer to use no cloth, having a flat board cover directly over the top-bars, with a bee-space between.

4. In cellar you need no such protection.

5. I don't know; I think the majority are self-spacing.

6. If raised at one end, half an inch should be enough. If raised all around, a fourth to three-eighths should do.

7. I think so.

8. That depends on the kind of wood. In any case it would be well to have a coating of paraffin or wax.

9. Sweet clover should do well there, and the bees would think it no hardship to go a mile to visit it.

## Surplus Pollen

When we look over the colonies in the spring we at times find combs nearly full of beebread, old and hardened. Would it not be better to take such combs out altogether and give new combs, as it seems to me the bees will not, or cannot, use the bee-bread plugged cells unless they spend much unnecessary labor?
WISCONSIN.

Answer.—Yes; in a bad case it is probably better to melt up the comb and start afresh. In some cases it is possible to jar the pollen out of the comb when it is thoroughly dried.

## Moving Short Distance

I shall have to move one of my apiaries about a quarter of a mile after this season's clover flow. I do not like to move the whole apiary twice to do this job. How would it work to move the greater part of the apiary direct to the new location, leaving a few weak colonies to catch the bees that return, and then move these to another apiary?
OHIO.

Answer.—You could do that way, but I think I would prefer this way: remove *all* the colonies, and leave in the old place a hive containing empty combs. The returning bees would settle on these, when you could take them to the new location, shake off the bees in front of any colony or colonies you liked, and then take the combs back to the old place, repeating this until the bees gave up returning.

## Transferring From House Wall

Will you please inform me the best and most sure way to capture a swarm of bees that is located in a house, the entrance being a crack where the porch roof joins the siding of the house? The people prohibit taking off any boards.

When is the best time to do this?
KANSAS.

Answer.—I'm afraid I can't help you much. It is barely possible that you might manage to inject carbolic acid or some other substance so offensive to the bees as to stampede them entirely, making queen and all rush out of the entrance, when you might stop the entrance and capture the bees. You might also capture a good part of the bees by attaching a bee-escape to the entrance, say in fruit bloom or at the beginning of clover bloom, getting them to settle on a frame of brood or an empty brood-comb. This could be given to any colony you like, and the performance repeated about every 10 days.

## Honey on a Virginia Island

I want to know about the location, sources of nectar and your advice in general. The place is Chincoteague Island, Accomac County, Virginia, situated on what is known as the eastern shore of Virginia, extreme northeast corner of the State, 5 miles from the mainland, you might say in the ocean. It is an island containing 7 square miles, with another adjoining containing about 4 square miles; both have lots of pine forest, some black gum, holly, oak, cedar, persimmon and a few locusts on my place. The 38th degree of latitude is just north of both islands. Blackberries and other berries that I do not know the names of; also an abundant growth of wild flowers that bloom in spring, summer and fall; also some fruit bloom. No clover or buckwheat grow wild, nor are they cultivated. No bees on the place, only bumblebees, as far as I know of. Only uncultivated plants, etc , for the bees.

What do you think of it for a back lot apiary? If it is good, and I should succeed, I would eventually cover the whole acreage with a few colonies placed elsewhere than at my home, and plant clover if I could get it to grow on so low an elevation—about 4 feet above the sea level on an average. Once in a while (about 5 to 7 years) the place is flooded with salt water from the ocean; only the highest points left out. Fortunately my place is one of them.

My idea is to start with about 4 colonies, using Jumbo 10-frame hives, and running for chunk honey, as the demand there is most favorable for that kind of honey. I will buy what extracted I have a market for.

I was told that it would be a good location for a queen breeder, for pure stock.
VIRGINIA.

Answer.—I don't know enough to say whether your prospective location is a good one for bees or not. I should be a little afraid that the pasturage is not of the best kind, but it may be better than I think. Your plans are all right if you only have the nectar. If you are counting on a continuance of some years, it might pay big to scatter widely seed of white and sweet clover. I don't know whether clover will grow for you, but should be very hopeful of sweet clover. Even if it should grow poorly at first, it might be increasingly successful in time, and it might be a good thing to apply to the U. S. Department of Agriculture for material to inoculate the seed or the soil. In one respect there is a possibility that you have struck a bonanza in one thing you have mentioned. If you become an expert at rearing queens you are all right for that business, even if you cannot get very good crops of honey, for if there are no bees on the island that you cannot control you are sure of pure mating, a thing that very few can boast of. Under the conditions mentioned you could guarantee absolutely pure mating, and that's perhaps half the battle in queen-rearing.

## Virgins—Moisture—Old Combs

1. What kind of honey in flavor and color does the Scotch broom give. My bees are busy on it as long as it is in bloom, but there are only three or four bushes in my reach. One beeman, two miles away, near a fair patch, gave me a sample that he says his bees gathered from this Scotch broom. Very thick, wine or cherry color, a little strong in taste to me, but pleasant to others who tasted it.

2. In requeening, what is the proportion of satisfactory to unsatisfactory virgins?

3. In maintaining two queens, one above an excluder, has anyone ever introduced a queen to the upper story without waiting for one to be hatched?

4. I have the 10-frame dovetailed hives. One, upon examination this spring, had moisture dripping and the inner cover of the metal cover was swelled tight, and the other hives had nothing like this. The entrances were cut to 5 inches.

5. Do the brood-combs ever have to be thrown out, or how long are the bees able to use the same combs?
WASHINGTON.

Answers.—1. I have never heard of this honey before, and perhaps it may be left for you to find out about it and tell the others.

2. Likely you mean what proportion of virgins become laying queens. I don't know; possibly three-fourths, although sometimes much less.

3. Yes.

4. Perhaps this hive was closed more tightly on top than the others.

5. I don't know that they ever become too old, if the combs are good and straight.

## Pollen—Louisiana for Bees

1. When bees are gathering abundant pollen do they gather less nectar for their use?

2. Is Louisiana a good State for bees. I am here first year
LOUISIANA.

Answers.—1. When bees go afield they gather nectar in most cases without any pollen. They may gather both nectar and pollen, and for all I know they sometimes gather pollen without any nectar. A bee that carries a heavy load of pollen would hardly be expected to carry as much nectar as it would if it had no pollen. But it should not be forgotten that it is just as important to have pollen as nectar; and if a bee should never carry anything but pollen, it is doing its full share toward securing a honey-crop.

2. I think it is so considered.

## Bees From Trees—Strong Swarms

1. Is there any way of smoking bees out of a bee-tree? How? When?

2. Is there any danger of not getting the queen?

3. Is there any way of attracting stray swarms?
NEW JERSEY

Answers.—1. They can be gotten out by blowing enough strong smoke,. or putting in enough carbolic acid or other substance offensive to the bees. If the object is merely to get the bees there could be no better time than in the spring, before much or any brood is present.

2. Unless all the bees are gotten out there is danger that the queen may be among the last.

3. In a number of cases I have had stray swarms occupy empty hives standing in or near the apiary.

## Sorghum for Bee Feed

1. Do you think that real good quality, nice, clear, light colored sorghum molasses would answer as winter stores for bees, or if not, how would it do if mixed with sugar?

2. Is there any preference between the white and yellow varieties of sweet clover as honey-producing plants, as to growth of plant or yield of nectar?.
ILLINOIS

Answers.—1. I don't believe that it would be well to have even a very small quantity of molasses in the bees' winter food.

2. Yes; the white is preferred. Both are good.

## Dead Brood—Requeening

1. When I took my bees from the cellar this spring I found one dead colony. I think starvation caused their death. On one frame I found a patch of dead brood about the size of the palm of my hand. This brood was sealed, but the caps were not sunken; the dead brood gave off no smell and was not the least bit ropy. This colony was short of stores in the fall, so I fed them about 5 pounds of honey. When I put them in the cellar they had brood in all stages of development. What do you think caused the dead brood?

2. Would it have been better if I had removed the brood before putting in the cellar?

3. What do you think of introducing queens by smearing with honey, as advised by F. M. Baldwin on page 200 of the June, 1918, American Bee Journal?

4. Would the first part of July be a good time to requeen? We have a good fall flow here.
MINNESOTA.

Answers.—1 The brood probably did not die till the bees died, and then it chilled to death.

2. There was probably some wrong condition

that made brood in the hive at time for cellaring, and taking out the brood would likely not have helped.

3. Some report entire success; but others are not so successful.

4. Yes.

### Unpacking Goldens—Royal Jelly

1. When could I take four stands of bees out of a shed? When I bought them it was almost too late to pack them.
2. When is the correct time to unpack my bees?
3. Would you advise me to buy Golden Italians, or the leather colored?
4. Are the Goldens as good?
5. Would it be too early to divide before the white clover flow, about June 15?
6. Or would this check the honey-flow to a certain extent?
7. Do you get royal jelly out of queen-cells?
8. If so, what part? and can it be saved in a bottle?
9. Should I put any syrup or flour out for my bees now?
10. How do you feed inside the hive when packed?
11. How much honey should I expect from a colony that has never had much care, but is in a good hive with straight foundation?
12. I have eight stands, four well cared for and four that are not. How much honey should I expect and make an increase of eight colonies?
13. Will they make 800 pounds or more?
14. How would you advise me to sell this amount, in 2-lb. cans, 5-lb., or large cans, and ship it? INDIANA.

ANSWERS.—1 and 2. Unless there be danger of starvation or some other reason for disturbing them, it is better not to unpack until it is pretty warm, say toward the end of May. That is equivalent to saying that the bees in the shed should not be moved till then. If, however, you had taken them out before there was any flying to speak of, there would have been less trouble about bees going back to the shed when taken out of it.

3 and 4. There are good and bad in each; but on the whole, I should prefer the leather-colored.

5. Yes, if you want the most honey; no, if you want the most bees. Yet in regions where the chief flow comes late, it might not be too early for either purpose.

6. If you divide at the beginning of the clover flow you will pretty surely get less clover honey than you would to leave the colony undivided.

7. You can, if you want it; but in the practice of some no jelly is needed to start cells. The bees will produce the jelly without your taking any out of queen-cells, if they need it.

8. The whole of the pap-like substance found in a queen-cell is royal jelly, and some report keeping it some time corked in a bottle.

9. Putting out syrup may be a good thing if the bees can get nothing from the flowers and you don't mind feeding neighboring bees; and it does no harm to put out some kind of meal if the bees get no natural pollen.

10. You can't without at least partly unpacking.

11. Anywhere from nothing to 200 pounds. But you're more likely to have nothing than 200 pounds.

12 and 13. I couldn't tell at all. The location, the season, the bees, and other things have much to do with it. Then that "well cared for" is a varying quantity, depending on whether it is the care of a beginner or an expert. To double the number of colonies and get 800 pounds of honey from eight colonies could hardly be expected. To get 300 pounds would be doing well.

14. Likely you will do better to sell near home. Size of container depends on market; likely the 5-pound size may be best.

## BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

### Starting With Bees

My Dear Miss Wilson:

I am also a woman and anxious to succeed with bees, although I know nothing about them.

Will you kindly tell me how I can best make a small start, where to obtain information, what month is the best to start in, etc.

We recently moved to this place and there are some hives and a stand in the yard. The last lot of bees were killed by moths. How can I clean and fumigate the hives, etc.

MRS. HENRY B. McVEIGH.
New Sharon, Iowa.

There is no better time to start with bees than in spring, say about the time fruit trees are in bloom. Then the risk of wintering is over. Better not start with more than two or three colonies, and then you can increase in numbers as you gain experience. Get Italian bees, or you can Italianize them afterward.

For information about bees you can take First Lessons in Beekeeping, a 175-page beginner's book, by C. P. Dadant, price $1.00. If you want a larger work, you can get Langstroth on the Honey-bee, a full treatise on bee-keeping having 575 pages, revised by C. P. Dadant, price $1.50. A thousand answers to beekeeping questions, by Dr. C. C. Miller, a book of 290 pages, supplements other books by answering questions not usually taken up. Price $1.25. You can get any of these books at the office of the American Bee Journal, Hamilton, Ill. Sooner or later you will be likely to want a monthly bee journal, but be sure to have a book first.

If the old hives have been in complete control of the bee-moth, they have probably destroyed the comb, so that all you need do is to scrape out the remains and no fumigation is necessary.

Any further questions you may have will be cheerfully answered in this department.

### Beekeeping for Women

Beekeeping for women can be divided into two parts; first a hobby, second a commercial industry. Every woman, though she be a busy housewife, should have a hobby or something to turn her mind to besides 365 days of cooking, washing dishes, doing the family washing, ironing and mending. For it has been proven that years of this kind of work has given us a crop of pale, nervous, dissatisfied women. 'Tis true most of us do embroidery work, lace making, or something of this nature, but I do believe we should have something to take us out of doors, giving us fresh air, nature study and make us forget ourselves.

To me beekeeping is the most fascinating work I ever studied, and as I said, we should have a hobby, why not have one that gives financial returns as well as pleasure. Now, for the new beginner, don't try too many colonies, and remember there are three important things to be remembered, viz., neatness, self-control and patience. Don't forget this last word, patience, for bees do not approve of this hurry habit so many of us have fallen into. Neither do they approve of slovenly, dirty ways, and if we are neat and patient we must have self-control; having these three things in mind, get a few colonies of bees in good hives, a good, practical book on beekeeping, and, if possible, get some beekeeper to help you get started, for reading books alone is not so helpful as working with some beekeeper.

Some woman says, "I can't think of being stung." There are worse stings than bee-stings, and with the use of gloves and veil, bloomers or coverall suit, stings become a small factor in beekeeping. One can get hives complete, but I believe most women will enjoy the making of hives, especially the inside fixtures. I enjoy all the work except the painting.

One thing in particular I wish to mention, don't forget to use full sheets of foundation in hive-body; in fact, prepare your whole hive the best way possible.

One must not expect everything to be lovely, for beekeeping has its ups and downs, as well as any other vocation one might engage in.

Perhaps the heavy lifting is one of the greatest drawbacks for a woman beekeeper, but generally there is some one around who can assist in the lifting. I think for the woman who finds help scarce comb honey is the most profitable for her to handle. Then, too, there is something fascinating about preparing comb honey for market, and I do not see anything fascinating in turning an extractor, but this can be decided by each individual.

Now for the financial side of beekeeping. I have in mind several women who keep bees as a side line for their own money. All of these women have families to care for and help with other outdoor work. One single woman handles 70 colonies successfully and does most of the farm work alone, her father dying a year ago this winter.

I believe the woman that takes up beekeeping as her hobby or for her self-support, will at the end of the year find herself better, physically, and mentally, and a better companion for her fellow men than the little indoor woman.

MRS. ROY BUNGER,
Eskridge, Kans.

(Not every woman would agree that it is better to produce comb rather than extracted honey. To be sure there is nothing very romantic about turning an extractor, but neither is scraping bee-glue off sections, with the sticky dust flying, anything so very enchanting. It must be confessed that when the finished crop is ready for market, the sections present the finer appearance, but it takes more skill to produce them. After all, the deciding factor for each one depends upon which is the more profitable, and that each one must decide for herself.—Ed.)

# MISCELLANEOUS NEWS ITEMS

### Cure for Yellow Jackets

On page 98 of the March number of the American Bee Journal, under Dr. Miller's answers, I find some one from Washington asking about yellow jackets. Here is a **sure**, not too hard, **cure.**

Get, fresh from the butcher shop, a couple of pounds of beef liver (fresh meat) and cut into pieces two and one-half or three inches long by one inch thick. Work into this liver with a knife about one-quarter ounce of either arsenic or Paris green to the pieces. The latter is best, and hang up out of the reach of cats and dogs, by a wire, somewhere around the apiary, or near the honey-house. The yellow jackets do the rest, and, as a rule here, do not bother for a couple of years; then another dose. It seems to clean out both the flying and embryo jackets, as they are meat eaters and will work for nearly a week on one baiting.

CHAS. F. SCHNACK,
Escondido, Calif.

### Paste to Stick Labels to Tin or Glass

The following formula by W. C. Raymond, in Gleanings, will do it:

Half an ounce of silicate of soda (or, rather, common water glass), 1 ounce corn starch, 1½ pints of water. Add the starch and silicate of soda to the water and stir till uniform; then place the dish in another vessel of water and heat till the starch is gelatinous.

LEROY FLOYD,
Caywood, N. Y.

## UNITED STATES DEPARTMENT OF AGRICULTURE

### Bureau of Markets

### Honey Arrivals Since Last Report

Medina O.: 2,180 pounds Michigan, 2,898 pounds Florida.

### Shipping Point Information

San Francisco: Too few sales to establish market.

Los Angeles: Warm, clear. Supplies very light and practically all held by exchange. Demand slow; no sales reported.

**Note:** Arrivals include receipts during preceding two weeks. Prices represent current quotations.

Cincinnati: No carlot arrivals. Supplies heavy. Practically no demand or movement; no sales reported. Beeswax: Demand and movement moderate; market steady. Sales to jobbers—pure wax, dark to light, 40-44c per pound.

Kansas City: 1 Colorado and approximately 50 packages freight arrived. Supplies moderate. Demand slow, movement draggy. Sales to jobbers—Comb: 24-section flat cases, Colorado No. 1 light, $7.25; Missouris, $8.00-8.50. Extracted—Colorado, 60-lb. cans, 20-22c per pound. Beeswax: 35-40c per pound.

Chicago: No carlot arrivals, but liberal receipts from Illinois, Idaho, Colorado, California and Wisconsin in small lots. Demand and movement good for extracted; demand and movement slow for comb. Sales to Jobbers—Extracted: per pound, all sections, white 20-22c, light amber 19-21c. Comb: 24-section cases, Western No. 1, $6.50-7.00; dark broken, $4.50 up. Beeswax: Demand and movement moderate, light 45-50c; dark 40-43c per pound.

Cleveland: No demand. No jobbing sales.

Denver: Receipts very light. Demand and movement very slow. Sales to jobbers—Extracted: White, 19c per pound. Beeswax: Cash to producer: Light, 38c per pound.

Minneapolis: Supplies liberal. Demand and movement slow. Sales direct to retailers—Comb: Little change in prices; fancy western white, $7.50-8.00 per case. Extracted: Prices lower. Western, 60-lb. cans, fancy, 20-23c per pound.

New York: Arrivals, 395 barrels West Indies, 1,140 cases Central America, 80 barrels South Pacific ports. Exported: 590 barrels, 445 cases to France; 500 cases to England, 2,680 cases to Sweden, 600 cases to Denmark. Demand slow, few sales to jobbers—Porto Rican and Cuban, $1.85-2 per gallon. New York, per lb., buckwheat 12-16c, clover 18-20c. Beeswax: Arrivals, 200 bags, 79 seroons, 27 cases West Indies; 168 bags South America. Exported: 60 bags to Sweden. Demand and movement slow, market weaker. Per pound, dark 35-37c, light 38-39c.

Philadelphia: No receipts. Demand and movement very light, practically no movement; very few sales. Sales direct to retailers: Comb—California 30-32c per pound. New Yorks, $5.50-6.00 per 24-section case.

St. Louis: Supplies light. Demand and movement slow. Sales to jobbers—very few sales. Southern Extracted, per pound in barrels, 18c; in cans, 20c. Comb; Practically no supplies on market. No sales reported. Beeswax: Prime 35c per pound.

St. Paul: Supplies liberal. Demand and movement slow; very few sales. Sales direct to retailers: Comb—Western fancy white, $7.50 per case. Extracted: Western, 60-lb. cans, fancy, 25-28c per pound.

### Telescoping Covers

For some time I have made my own telescoping covers and under covers for my hives from store boxes. I get some pieces 2 inches wide by seven-eighths inch thick sawed out at the mill and cut them three-quarters of an inch longer than the width of hives. I cover them with three-eighths or half-inch lumber from the store boxes. Then I cover them with asphalt roofing, reaching down over the 2-inch sides of covers.

I give them a coat of asphalt paint every year or two in early spring and leave them out in the weather to dry some time before I take my bees out of winter cases.

D. F. Rankin, painting double covers.

I find my combs never melt down under such covers and my bees are all without any other shade.

Enclosed is a picture taken when I was painting the covers.

D. F. RANKIN
Brownstown, Indiana.

### A Missouri Association

On March 13 the Chariton County Beekeepers' Association was organized at Brunswick, Mo. The following were elected as officers:

President—W. L. Williams.
Vice President—Dr. W. D. West.
Secretary-Treasurer—H. E. Bartz.

### Prolific Bees

Thirty-five years ago, when I was 17 years old, I secured a swarm of bees which were the gentlest and best honey-getters I ever saw. I made a hive of about eight frames, but about 30 inches long, three stories and a super. The first year I got about 300 pounds of the whitest and finest honey. After that from 30 to 100 pounds, with never a failure in the poorest seasons. They were larger than the largest Italians I ever saw,

very hairy and of a silvery-light color, glistening in the sun. My question is, what kind of bees were they? SYLVESTER KALER,
Arkansas City, Ark.

### High Prices in Denmark

The honey harvest this year was nearly a failure most places in Denmark. The island of Bornholm was one of the best, here it was about average. I got 300 pounds less than last year, but the price was so high that the increase this year was more than last. The price was fixed by the government at 67 cents per pound, or 23 cents higher than in 1917. If there had been no fixed price it would have gone away in the wild, as the demand was very great. For wax we were offered $2.50 per pound, but now the price is fixed at about 90 cents, which is too low, so no wax will be sold. Thank God the war is over. ANNA SOMMER,
Lobbek Bornholm, Denmark.

### Introducing Virgin Queens

Referring to page 17, January American Bee Journal, article written by Dr. Miller, "Care of Virgin Queens."

Having had much experience along this line for the past 18 years, I will give my plan of introducing week-old virgin queens taken from a nursery cage.

Take a cage same as used for shipping a pound package of bees, cage bees in these the exact amount in each cage desired to form the nucleus. Leave them caged from 10 to 14 hours or over night without food. Then sprinkle heavy next morning with sugar syrup; at the same time dip the virgin queen in syrup and let her loose in the package; turn the package first one way and then the other, mixing the bees all up. Don't be afraid you will hurt them; give them a good shake. Leave them for one hour, or, better still, if they are to be taken any distance to outyards, load into truck and take to locations where the nuclei have been prepared to receive them. Upon arriving, if they have cleaned themselves up pretty well, sprinkle again with syrup; then dump the whole bunch into the prepared nuclei, which should contain some empty combs, so they may have a place to store a portion of the syrup now in their honey-sacs.

There should be no brood in the nuclei, only empty combs. I remember once of introducing 450 old virgins in this way, and 14 days later caged 412 fine laying queens.

This is the most successful plan I have ever used, after trying many different ones the past years.

Should these week-old virgins be introduced to full colonies or old formed nuclei which have been queenless 3 or more days, I would cage all the old bees out of these that I thought they could spare over night, not to weaken them so as to lose their brood; leave these caged in same manner over night, and treat them as before, with syrup; loose the virgin from hatching cage, dip her in syrup and run into the cage; then take these back to the colony from which they came; and the plan works better than any I have ever used. In other words, it's about the only way a virgin can be successfully introduced.

It seems as though the bees, after having been confined for so long without food and then sprinkled heavily with food, have so much to be thankful for that they gladly accept the virgin and never think of picking a scrap with her, and after remaining an hour or so with the bees in this manner she becomes one of the bunch, and they can better be united to their original colony.
WM. ATCHLEY, Ontario, Calif.

### Temper in Bees

In 1916 I purchased a Cyprian queen. In 1917 I grafted 10 cell-cups from the Cyprian queen and got 7 laying queens. These were mated to the golden drones in my yard, and in temper were about like the average of the yard. That is, you really don't need a smoker.

Ten virgins just hatched were chosen for a mating experiment. They all looked alike and all were hatched within 4 hours from first to last. The excluder zinc was closed on all 10 entrances till on the fifth day. All drones were confined to their hives except those of the Cyprian queen. Then 5 excluders were opened, these 5 mated on or before evening of the ninth day; the excluders were now closed on these, a drone trap placed on hive of Cyprian queen. The other 5 excluders were opened and also the excluders from my colonies of Golden drones. One queen was lost, the other four were O. K.. Results: These 4 queen bees were about like the average in the yard as to temper; the other 5 queen bees were alike, and if such were possible, were crosser than those of the Cyprian queen.

I now mated a virgin from my breeding queen to the drones of one of those queens crossed with Cyprian drones, and in temper these bees were equally as cross. We can't be too careful of our drones in mating queens. Some day the old theory will be shattered that the drone is not affected by the mating of the queen. If you wish to change the ways and temper of your bees look to your drones. My conditions here are ideal for such experiments. I had less than 1 per cent mismated queens in 1918.

D. L. SWARTS,
Lancaster, Ohio.

### Parthenogenesis

I am sending you a clipping containing an article by W. E. Joor, President of the Dallas County Beekeepers' Association, in which he says that the queen lays eggs in drone-cells that produce drones. Is this correct?

What I know about bees I have learned directly from the bees, and I have seen worker-bees lay eggs in drone-cells and I know that these hatched as drones. I have had this to happen many times in queenless hives. So I have concluded that the worker-bees lay the drone eggs and the queen lays the eggs that hatch as workers or queens. Let me know whether I am right. W. H. M.
Texas.

Answer. You and Mr. Joor are both right. He is right in his assertion that the queen can and does lay drone eggs in drone cells and you are right in saying that workers—some of them, at least—can lay eggs that will hatch as drones.

The ability of the queen to lay both worker and drone eggs is similar to that of any other perfect female. But she has another ability which pertains only to a few insects, and that is to lay eggs which will hatch into living insects without having been fertilized at all. This peculiarity is called "parthenogenesis." It is as follows:

The queen has, alongside of the duct or canal through which the eggs pass, a small sac which is called the "spermatheca," and in which the fecundating liquid from fertilization is kept. When the egg passes by that sac, if a slight pressure is exerted, the egg is fertilized and becomes a female, queen, or worker. If the pressure is not exerted, the egg passes without being fertilized, but it nevertheless hatches and produces a male or drone. The worker bees, never having been fertilized, may nevertheless lay some eggs, and these also hatch as drones. It is only in queenless colonies that you will find laying-workers, and whether their eggs are laid in drone cells or in worker cells, they invariably hatch as drones.

The same thing happens with a queen which has been confined to the hive during the first month or so of her life, so that she cannot mate. After that lapse of time she loses all desire to mate and begins to lay eggs. But as she has not been impregnated, all her eggs hatch as drones.

These are facts which have been proven over and over. You will find them mentioned in "The Hive and Honey Bee' revision, pages 55 to 62, or in shorter description in "First Lessons in Beekeeping," pages 3 and 4. In fact, almost any work on bees mentions this "parthenogenesis," which is a very interesting peculiarity of the honeybee.—C. P. D.

### Spraying Again

I have just been reading the article in your journal in regard to prohibiting spraying while the trees are in bloom.

The writer seems to think that laws are not just what are needed. Why not require manufacturers of spray poisons to print the necessary information on the labels of poison containers? It will then be where it is needed at the right time, and the average person will pay more attention to it than to the same thing in a circular that he probably received two or three months before and had time to forget.

WM. C. KELSEY,
Orland, Ill.

# Crop and Market Report

Compiled by M. G. Dadant

The winter loss has been extremely small, comparatively all over the country the past year, being as low as a fraction of 1 per cent, and only as high in extreme instances as 12 per cent.

Throughout the Eastern States, the South and the Central West, the losses have averaged from 2 to 3 per cent, with only an occasional reporter turning in 10 per cent.

It is surprising to note that the largest losses were in the States of Colorado and New Mexico, where the average was probably from 7 to 8 per cent, and many reporters stated that the losses were as high as 12 per cent.

There is also, in some instances, large loss reported in California, mostly due to insufficient stores in the fall. Other reporters in the same locality, whose bees had gone into winter with a quantity of stores, came through in excellent shape.

## CONDITION OF COLONIES

In practically all of the East, Central West and Southeast, and more especially in Texas, colonies are coming through in excellent condition. They are, as a rule, very strong in bees and the only criticism is that they may be short of stores, this probably due more to their not having been given sufficient stores in the fall than to extreme use of stores during the winter.

## CROP PROSPECTS

Very probably in all the East and Central West, prospects are not above average. Conditions seem to be especially favorable in the New England States and in sections of New York, Pennsylvania, and Ohio. The southern half of Illinois, Indiana and all of Missouri seem to be much below normal, while sections of Iowa report the clover burned out last summer, and no prospects ahead.

The northern half of Illinois seems to be better, as does the northern part of Iowa, and conditions in Michigan are very favorable.

In Wisconsin, the clover seems to have been burned out last year, and prospects are not especially flattering, although some reporters claim that good spring rains will bring a fair crop.

In Minnesota, and the Dakotas, the prospects are average, or possibly a little lower. Kansas and Nebraska have fair prospects. Sweet clover prospects in the Missouri valley are excellent.

In the whole Southeast, the prospects seem to be at least normal, and in Texas conditions are especially favorable. They state that they expect a better crop than for several years.

It is too early to give any indication of crop prospects in the inter-mountain States, although they seem to be about normal.

The orange flow in California seems to be at least as good as average, while the conditions with the sage and alfalfa hardly seem to be up to normal.

## INCREASE FOR 1919

Practically 90 per cent of the reports state that increase will be made, and this increase varies from 20 to 100 per cent. Localities expecting to make the least increase are those which experienced a short crop last year, with unfavorable conditions for 1919. In the Eastern States the increase will be from 20 to 50 per cent, whereas in the Central West it will only range from 5 to 15 per cent.

In the Western States many of the larger producers expect to increase about 10 to 25 per cent, with only a few holding off with their present number of colonies owing to the expectations of a drop in prices of honey.

## HONEY DEMAND AND PRICES

Contrary to our prediction in the crop and market page for January, there remains considerable honey on hand, and much of it will probably be carried over until the new crop is harvested.

Practically all of this honey, however, is in the hands of the dealers, only a small percentage of our reporters claiming any large amount on hand.

Practically every reporter states that honey is in poor demand, and this is re-echoed by the dealers who are having very few calls for honey, and these from the regular users who were in the habit of buying honey regularly.

The outlook, therefore, for the supply of honey now on hand is in foreign markets. There is some satisfaction in the statement of the Bureau of Foreign and Domestic Commerce that there was sold during February to foreign buyers, almost 2½ million pounds of honey, as against 1½ million pounds during the same period in 1918. This goes to show that the foreign buyers are taking honey freely, although, of course, they are getting it at a much less figure than during the previous year. The large exports are probably due both to the lower price and to the facility with which export permits are issued for foreign shipments. Then, too, the rate of freight and insurance has dropped a great deal, making the freight costs very much less than they were during last February.

All markets are bare of comb honey at present and one big distributing house states that they could dispose of several cars if it were to be had.

With the large number of beekeepers now producing extracted honey, we would not recommend discarding comb honey equipment for extracted. In fact, prices of the two may not compare unfavorably for the comb honey producer during the coming year.

---

## CLASSIFIED DEPARTMENT.

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

### BEES AND QUEENS

"SHE SUITS ME" Italian queens, $1.15 each from May 15 to October 15; 10 or more, $1 each. Allen Latham, Norwichtown, Conn

CLOVER and heartsease honey, fine flavor, in new 60-lb. cans, at 23c.
Edw. A. Winkler, Joliet, Ill.

FOR SALE—Apiary of 100 strong colonies equipped for xtracted honey, fine location; 500 full-depth supers, 100 shallow supers, 120-acre homestead, relinquishment goes with the bees; everything new and in fine condition. If interested, write for complete list and price.
J. B. Douglas, Box 1085, Tucson, Ariz.

FOR SALE—Hardy Italian queens, 1, $1; 10, $8. W. G. Lauver, Middletown, Pa., R. 3.

FOR SALE—Goldens, untested, 1, $1.25; 6, $6.50; 12, $11.50. S. A. Tyler, Emden, Ill.

FOR SALE—1 2-lb. package of bees with a 3-banded Italian queen, for $5.
J. L. Leath, Corinth, Miss.

I. F. MILLER'S STRAIN Italian Queen Bees for sale. Now booking orders for early delivery. By return mail after June 15, or your money back. Northern bred, for business, from my best superior breeders; gentle, roll honey in, hardy, winter well, not inclined to swarm; leather color or 3-banded. Queens a specialty; 25 years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, $1; 6, $5.50; 12, $10. Select untested, $1.25; 6, $6.75; 12, $12.
I. F. Miller, Brookville, Pa., R. R. No 2.

FOR SALE—One of the best queen breeders in the United States is now raising queens for us from selected stock of leather-colored Italians. We offer warranted queens at $1 each, or $90 per hundred. Tested queens $2 each. Satisfaction and safe delivery guaranteed. Queens ready May 25. Order now, as our supply is limited.
The Foster Honey & Mercantile Co.,
Boulder, Colo.

THE EDSON APIARIES will have a surplus of A No. 1 laying Italian queens after May 1, leather colored or goldens; prices reasonable. Address Edson Apiaries prior to June 1, Biggs, Calif. After June 1, West Butte, Calif.

QUEENS—Bees by the pound, 3-banded and golden. They are hustlers, gentle to handle, cap their honey white, are very resistant to European foulbrood. Booking orders now one-fourth down, balance at shipping time. See January "ad" for prices on bees by the pound. Quote nuclei f. o. b. here, 2-frame nuclei, $4.50; 3-frame nuclei, $6; 1-frame nuclei with 1 lb. extra bees, $4.50; 1-frame nuclei with 2 lbs. extra bees, $6; 2-frame nuclei with 1 lb. extra bees, $6. No discount on nuclei. Select untested queens, $1.50 each; 25 or more, $1.35 each. Tested queens, $2.50. Select tested, $3. Free circular giving details.
Nueces County Apiaries, Calallen Texas.
E. B. Ault, Prop.

FOR SALE—For spring delivery—Colonies of Italian bees fine strain, with tested queen, in 1-story 8-frame single-wall hives, full depth, self-spaced, Hoffman frames, nearly all wired, $10 each. A few colonies in 10-frame hives, $11 each; all free from disease; f. o. b. here.
Wilmer Clarke, Earlville, Mad. Co., N. Y.

FOR SALE—150 colonies of bees in Iowa, mostly Italians. One 4 and two 2 frame extractors, storage tanks, empty hives and supplies, in good condition; will sell as one lot, or part No disease. Reason for sale, leaving the State.
F. Eric Millen,
State Apiarist, Ames, Iowa.

---

THREE-BANDED ITALIANS ONLY—Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75.
H. G. Dunn,
The Willows, San Jose, Calif.

---

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75.
Garden City Apiaries,
San Jose, Calif.

---

FOR SALE—Bright Italian queens, $1 each; $10 per doz. Ready April 1. Safe arrival guaranteed.
T. J. Talley, R. 4, Greenville, Ala.

---

BEES AND QUEENS—When you can't get them from others you can from us. 1 lb. package, $2; 2-lb. package, $3.75 Queens, $1 each, $11 per doz. Good stock; no disease; order quick. Special prices on nuclei.
Pelican Apiary, New Orleans, La.

---

Head your colonies with Simmons' Famous Italian Queens. They took first premium at New York State Fair last September. Goldens or three-bands: 1, $1.50; 6, $7.50: 25, $30. Orders booked now and filled in rotation. Also nucleus from same stock ready for June delivery.
Allen R Simmons,
Fairmount Apiary, Claverack, N. Y.

---

J. B. BROCKWELL'S Golden Queens, untested, May, June and July, $2 each; six, $7.50; doz., $14; tested, $4 each. Breeders, $5 to $20 each; 3-f. nuclei with tested queen, $9.
Barnetts, Va.

---

GOLDENS—When you get tired being stung try one of these; tested, $2; untested, $1.
Honeysuckle Apiaries, R. F. D. 1 Box 208,
Fort Smith, Ark.

---

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln, Ill.

---

FOR SALE—3-band Italian queens ready June 1. Untested, each $1; twelve, $10; 100, $80. No disease here and satisfaction guaranteed.
A. E. Crandall & Son,
Berlin, Conn.

---

LEATHER and all dark colored Italian queens, when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock.
C. W Phelps & Son,
No. 3 Wilcox St. Binghamton, N. Y.

---

SWARTS GOLDEN QUEENS produce golden bees of the highest quality; satisfaction guaranteed. Mated, $1, 6 for $5; tested, $2.
D L Swarts, Lancaster, O., Rt. 2.

---

FOR SALE—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, $1.25 each; 6, $6.50; 12, $11. Satisfaction guaranteed.
W. T. Perdue,
Route No. 1, Fort Deposit, Ala.

---

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2.
C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

---

QUEENS FOR SALE—Quirin's hardy northern bred Italians will please you. All our yards are wintered on summer stands. Tested and breeders ready any time weather permits mailing. Untested about June 1. Orders booked now. Testimonials and price list for asking. Have been a commercial queen-breeder for more than 25 years.
H. G. Quirin, Bellevue, Ohio.

---

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each; half doz., $4.50, or $8 per doz. Select untested, 90c each; half doz., $5.50, or $10 per doz. Tested, $1.50 each. Safe arrival guaranteed.
Tillery Bros., R. 5, Box 1D, Georgiana, Ala.

---

QUEENS—3-banded Italians, from best stock; untested queens in April, May and June, one, $1; twelve for $10. Tested, $1.50 each; if you want as many as 50 queens, write for prices and discounts on early orders; no disease. Safe arrival and satisfaction guaranteed.
O. D. Rivers,
Route 4, Honey Grove, Texas.

---

QUEENS from one of Dr. Miller's breeders, tested, $1.75 each, $18 per doz; untested, $1.25 each, $13 per doz.; 1 frame nucleus, $3, 2 frames $5, 3 frames $6.50 each, without queens. We have never had any disease here. Safe arrival and satisfaction guaranteed. We have no package bees to offer, and no untested queens, except with nuclei. Delivery April 15.
Geo. A. Hummer & Sons.
Prairie Point, Miss.

---

WANTED—Bees in lots of 5 to 50 or more colonies.
J. F. Coyle, Penfield, Ill.

---

FOR SALE—Leather-colored Italian queens, tested, to June 1, $2; after $1.50; untested, $1; $10 per dozen.
A. W. Yates,
15 Chapman St., Hartford, Conn.

---

GOLDEN ITALIAN QUEENS and bees; honey-getters, prolific and gentle. Bees by the pound. Write for prices.
J. W. Rice, Box 64, Fort Smith, Ark.

---

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook.
1Atf 84 Cortland St., New York City.

---

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

---

BEES AND QUEENS—If the other other fellow has disappointed you by booking more orders than he could fill, let us know your needs at once; perhaps I may be able to help you out yet for this season. I am making a special rate on queens in quantities..
George W. Brown, Lynnhurst Apiary,
Wilson, Wis.

## FOR SALE

FOR SALE OR EXCHANGE—One Hatch wax press; also one Barnes foot-power saw.
Frank Hoopes, East Downington, Penn.

---

FOR SALE—40 colonies of Italian bees in 8-frame factory hives, Hoffman frames. Price, $8 per colony, f. o. b. here.
D. G. Little, Hartley, Iowa.

---

FOR SALE—Bee hives, supers, sections, smokers, bee veils. Foundation and bee books illustrated. Catalog for stamp.
J. J. Fitzgerald, Mitchell, S. D.

---

FOR SALE—Bees, 1-lb, $2; 2-lbs, $3.75; 3-lbs., $5.50; 3-banded queens, untested, $1.25; tested, $2 each Deliveries of pound packages from April 20 to May 20; queens until July 1.
Elevation Apiaries, Milano, Texas.

---

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you.
The Deroy Taylor Co.,
Newark, N. Y.

---

FOR SALE—A limited number of bees and queens for May delivery from either home apiaries or South Carolina; safe delivery guaranteed if shipped by express. Parcels post shipments at buyer's risk. We invite correspondence as to details and price.
The Deroy Taylor Co., Newark, N. Y.

---

HATCHING EGGS—Plymouth Rocks, all varieties; Anconas and Rouen ducks. Illustrated catalog 3c.
Sheridan Poultry Yards,
R. 13, Sheridan, Mich.

---

FOR SALE—Frame nailing device. You can make very satisfactory and simple device. Send 50c for drawings showing construction and operation for nailing Hoffman frames; use idea for nailing any style of frame.
Clarence Aldrich, Santa Barbara, Calif.

---

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

---

FOR SALE—40,000 pounds of No. 1 extracted clover honey and 35,000 pounds of aster honey; both of extra light color, heavy body and fine flavor, in 60-lb. cans.
W. B. Wallin, Brooksville, Ky

---

FOR SALE—25 10-frame hives, never been used, full sheets foundation.
30 lbs. foundation brood and surplus.
15 feeders.
70 10-frame queen excluders.
100 comb supers, 10-frame.
2,500 sections, 4¼x4¼x1⅞.
Five to six hundred extracting supers, with combs; no disease. E. Keister, Clarno, Wis.

---

FOR SALE—Silver Spangled Hamburg eggs and fine, rare old Paganini violin for sale.
Elias Fox, Union Center, Wis.

---

FOR SALE—40 8-frame zinc and wood queen-excluders, 25c each; 10-frame wire excluders, new style, 50c each.
D. G. Little, Hartley, Iowa.

---

FOR SALE—Due to my time being taken up with professional work this spring, I have more bees than I can take care of properly. If in the market for good colonies of bees, please address,
J. F. Coyle, Penfield, Ill.

---

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

---

FOR SALE—Golden Italian queens of quality, 1, $1.25; 6, $6; 12, $11. Satisfaction guaranteed.
L. J. Pfieffer,
Route A, Los Gatos, Cal.

---

FOR SALE—Good second-hand empty comb-honey double-deck shipping cases for 4¼x1⅞ sections, good condition, at 25 cents apiece, f. o. b. Cincinnati.
C. H. W. Weber & Co., Cincinnati, O.

---

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, $1.
American Bee Journal,
Hamilton, Ill.

---

FOR SALE—5 10-frame hives drawn combs on foundation.
1 8-frame hive drawn combs on foundation.
2 10-frame hives with frames, foundation, wired, one empty.
14 10-frame supers, inside fixtures, except two.
3 8-frame supers, inside fixtures.
10 10-frame supers, 5 in each lot, inside fixtures, not unpacked.
All in first-class condition. No disease.
P. H. Dunn, Akron, Iowa.

---

FOR SALE—Extracting outfit, 150 colonies bees, New Republic special truck, and location.
Frank F. France, Platteville, Wis.

---

FOR SALE—8-frame Hive Parts.

| | | |
|---|---|---|
| 149 | Brood chambers, empty | 75c each |
| 99 | Extracting supers, empty | 45c each |
| 154 | Bottom boards | 50c each |
| 49 | Metal-roofed covers | 90c each |
| 100 | Wood-zinc queen excluders | 30c each |
| 36 | Escape boards, with escapes | 25c each |
| 50 | Wood and 7-wire honey-boards | 60c each |
| 27 | Extracting supers ½ depth, with combs | $1.75 each |
| 38 | Extracting supers, ½ depth, empty | 35c each |
| | 10-Frame Hive Parts. | |
| 32 | ½ depth extracting supers, with combs | $1.80 each |
| 23 | Comb-honey supers, 7 to foot sections | 75c each |
| 21 | Excelsior covers | 50c each |
| 21 | Bottom boards | 40c each |
| 21 | Brood chambers, empty | 60c each |
| 21 | Wood-zinc honey-boards | 25c each |
| 20 | Old style 2-story extracting hives, empty | $1.00 each |

W. C. Lyman, Downers Grove, Ill.

---

FOR SALE—Golden Italian queens which produce gentle, yellow bees, the hardest workers we have known, $2.50 each. When you wish to improve your stock always buy the very best.
Wild Flower Apiaries,
Southern Bldg., Little Rock, Ark.

---

FOR SALE — Friction feed, 20-inch planer; good as new.
F. E. Gregory,
849 Ellis Ave., Ottumwa, Iowa.

---

SPECIAL SALE—1-story 8-frame dovetailed hives in flat, with telescope ⅞ wood covers, in packages of 5, at $10 per package.
A. G. Woodman Co., Grand Rapids, Mich.

---

FOR SALE—75 Lewis 24-lb. shipping cases at $8 per 25; 500 No. 1 Lewis sections, 4¼x4¼x1⅞ beeway at $4; one No. 15 extractor, $20; 1 Dadant uncapping can, $12; 10-oz. round screw-cap honey jars in 2-doz. reshipping cases, at $1 per case; either plain or beeway 10-frame painted supers filled with sections and full sheets, at $2 each; 8-frame at $1.80; without sections, at $1.10 and $1; 1,000 fence separators at $2.25 per 100; 2,000 slotted separators, $1 per 100; plain or slotted holders, $2 per 100; 100 division-boards at 5c each.
Edw. A. Winkler, Joliet, Ill.

---

FOR SALE—75 queen-mating hives, with half-size L. frames; part with combs and part with full sheets of foundation, and some empty frames. Will sell cheap. Write for photos and particulars. Have never had foul-brood.
D. G. Little, Hartley, Iowa.

## SITUATIONS

WANTED—Man with some experience to work with bees coming season; state age, experience and wages; we furnish board. The Rocky Mountain Bee Co., Billings, Mont., Box 1319.

WANTED—For the season of 1919, one or more men to work with bees. State age, experience, wages, and give reference.
A. J. McCarty,
712 Coffman St., Longmont, Colo.

WANTED—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near Summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

WHO wants to employ two energetic women anxious to learn beekeeping? Anywhere in northwest. One with some experience; can begin now. Nell Nichol, Gooding, Idaho.

WANTED—Experienced man desires position in Apiary. A. W. Nations, Camp Point, Ill.

WANTED—Experienced, strong beeman; good wages. Students Bee & Honey Co.,
1716 Rose St., Berkeley, Calif.

## HONEY AND BEESWAX

FOR SALE—4 60-lb. cans choice extracted buckwheat honey, 1 60-lb. can clover and buckwheat mixed, 400 sections fine quality buckwheat honey, about 400 sections fine clover and about 200 sections clover and buckwheat mixed in 4¼x1¾ sections. Will sell the whole lot at 19c or a part of it at 20c, f. o b. here. Send cash with order.
Wilmer Clarke, Earlville, Mad. Co N. Y.

FOR SALE — Buckwheat honey in 120-lb. cases, at 17c per pound. C. B. Howard,
Geneva, N. Y.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

FOR SALE—Clover, heartsease, No. 1 white comb, $6 per case; fancy, $6.50; extra fancy, $7; 24 Danz. sections to case; extracted, 120-lb. cases, 25c per pound.
W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.
A. G. Woodman, Grand Rapids, Mich.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St. Chicago, Ill.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

## MISCELLANEOUS

E. D. TOWNSEND, the present owner of the Domestic Beekeeper, bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the Domestic Beekeeper at the same low manufacturers' price. Listen now what he has got up his sleeve: Any American Bee Journal subscriber buying $5 worth of supplies through the Domestic Beekeeper at catalog price, and sending along an extra dollar to pay for a year's subscription to the Domestic Beekeeper, will get in return a rebate check of $1, leaving the year's subscription to the Domestic Beekeeper absolutely free to you. Of course, if your order for supplies is larger than $5 you will have a correspondingly larger rebate check on your order. One of our subscribers got a rebate check on his order of supplies last month, March, of $40. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought through the regular dealer in beekeeper supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the Domestic Beekeeper. A word to the wise should be sufficient to cause you to send your next order for beekeeper supplies to the Domestic Beekeeper, Northstar, Michigan.

Used honey extractor; cash or exchange—typewriter, incubator, etc. L. Clark, Winona, Minn.

WE WANT every subscriber of the American Bee Journal to become a subscriber of the Domestic Beekeeper. Listen: A $5 (or more) order of beekeepers' supplies at catalog price bought through the Domestic Beekeeper, Northstar, Mich., and a dollar extra for a year's subscription to the Domestic Beekeeper, will entitle you to a dollar rebate, leaving your subscription to the Domestic Beekeeper absolutely free. Could one ask more? This offer will give one an idea of what the Domestic Beekeeper is doing for its subscribers in the way of buying their supplies.

SONG—"The Plea of the Bee," or "The Honeybee Doing Its Bit." Sent to any address on receipt of 15 cents. The Cutting Publishing Co., 910 Merchants Bank Bldg., Indianapolis, Ind.

THE WAGNER CAPPING MELTER—No experiment, in use over 5 years, highly recommended by practical apiarists all over the country; a perfect machine; saparates honey from cappings and broken combs, while at the same time heats honey knives. Cheapest in price, cheapest to operate. Price only $7.50, fully guaranteed A. F. Wagner,
Bonita, San Diego Co., Calif.

EXCHANGE—One 5-ft. Diamond mesh woven-wire fence machine; two 5-ft. stretchers for 8 strong colonies Italian bees, with queen; Standard 10-frame hives.
T. B. Moore, Randolph, Nebr.

HIGHEST PRICES paid for old, used postage and revenue stamps. A. Arnold,
1482 Broadway, New York.

## SUPPLIES

BEEKEEPERS OF THE NORTHWEST—Save by ordering your supplies near home. Standard goods; Factory prices.
Geo. F. Webster, Sioux Falls, S. Dak.

WANTED—Used hives and supers, foundation mills, extractors, bees and bee equipment. State lowest cash price wanted.
W. A. Latshaw Co., Carlisle, Ind.

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

## WANTED

WANTED—July, 1916, June, July and December, 1917, and January and March, 1918 numbers of the American Bee Journal; will pay 10 cents per copy. Please wrap so that the whole Journal is protected.
American Bee Journal, Hamilton, Ill.

WANTED—Bees by the pound or colony, early shipment. Specialty Farm,
Rockford, Minn.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—Farm, from owner, suitable for bees, poultry, fruit; give price.
Mr. Culver, Box 36, Grand Forks, N. Dak.

WANTED — Second-hand extractor in good shape, also steam uncapping knife. Give description and price in first letter.
Otto Diestel, Elza, Ga.

WANTED—A second-hand 2-frame honey extractor and steam uncapping knife. Give full description and lowest price in first letter.
J J. Fitzgerald, Mitchell, S. D.

WANTED—50 to 100 full sheets of brood-foundation. State lowest price in first letter Grover Abbey,
Rt. 2, Columbia Cross Roads, Pa.

### Basket Picnic and Meeting

There will be a meeting of the Logan County, Illinois, Home Bureau, at the home of Mr. S. G. Tyler, Emden, Ill., June 3. Dr. Baxter, of Springfield, will be present and demonstrations will be given of the substitution of honey for sugar in baking. There will also be a demonstration of the best packing of comb and extracted honey. Trains will be met at St. Jose and Harness. For particulars, write to Mr S. G. Tyler, Emden.

### Western New Yorkers to Meet

The Western New York Honey Producers' Association will hold a spring meeting and basket picnic on Saturday, May 31, 1919, at the apiary of Emil W. Gutekunst, Colden, N. Y. Seasonable topics will be discussed by prominent speakers, including crop and market prospects. John N. Demuth, Secretary and Manager of the New York Honey Producers' Co-operative Association, Inc., will explain the work undertaken by that association.

HOWARD M. MYERS, Sec'y.

**Golden Italian Queens**

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

PRICES OF QUEENS

| | Nov. 1st to June 1st | | | June 1st to July 1st | | | July 1st to Nov. 1st | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $8 50 | $15 00 | $1 50 | $7 50 | $13 50 | $1 25 | $6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Safe arrival, purity of mating and satisfaction guaranteed

**No Nuclei or Bees by Pound**

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

**Statement of the Ownership, Management, Circulation, Etc., required** by the Act of Congress of August 24, 1912, of **American Bee Journal,** published monthly at Hamilton, Illinois, for April, 1919:

STATE OF ILLINOIS, ss.
COUNTY OF HANCOCK.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared V. M. Dadant, who having been duly sworn according to law, deposes and says that she is the Business Manager of the American Bee Journal, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, associate editor, managing editor and business managers are:

Publisher, American Bee Journal, Hamilton, Ill.
Editor, C. P. Dadant, Hamilton, Ill.
Associate Editor, Frank C. Pellett, Hamilton, Ill.
Managing Editor, M. G. Dadant, Hamilton, Ill.
Business Manager, V. M. Dadant, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: **None.**

(Signed) VALENTINE DADANT.

Sworn to and subscribed before me this 16th day of April, 1919.

R. R. WALLACE Notary Public.

My commission expires September 21, 1921.

**BEE SUPPLIES**

**Let Us Figure With You**

Get our discounts before buying. Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
**142 Grand Ave., Kansas City, Mo.**

PATENTED

**Wright's Frame-Wiring Device**

Most rapid in use. Save cost of machine in one day. Tighter wires, no kinks, no sore hands.

**G. B. LEWIS CO.** **Watertown Wis.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

LET US HELP YOU SOLVE YOUR BEEKEEPING PROBLEMS

**HONEY PRODUCERS' SERVICE**

Every ambitious beekeeper should learn of our co-operative plan to help him solve his financial, supply, producing and selling problems.

**CASH ADVANCE ON YOUR CROP**

Being among the largest producers of honey in the West, we can assist you. You can be accommodated with an advance on your crop on a contract plan, whereby you receive the market price, less our commission.

**CASH SELLING AND MONEY SAVING**

Remember us when you are ready to sell your honey. We will buy it at your station and pay you as much or more than you can secure elsewhere. We will buy your wax at top prices and save you money on your supplies. Our stock of supplies is ample.

**GIVE YOUR BEES A CHANCE**

It is not fair to limit the bees with insufficient super room when the flow is on. Don't take a chance of being caught without supplies at the critical time. We can furnish warranted queens at $90 per hundred.

**THE FOSTER HONEY & MERC. CO.**

**Wesley Foster, Pres.** **Boulder, Col.**

**DIXIE BEEKEEPER**

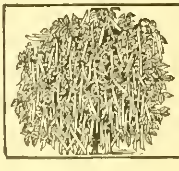
The first edition of this paper is now out and we are ready for subscriptions or to mail out sample copies. It covers the entire Dixieland with 32 pages of the most instructive matter pertaining to keekeeping.

**THE SUBSCRIPTION IS ONE DOLLAR PER YEAR**

**DIXIE BEEKEEPER, Waycross, Ga.**

**TYPEWRITER SENSATION**

**$3 or $4** monthly **buys** a Beautifully Reconstructed Latest Model Visible Typewriter with back-spacer, decimal tabulator, two-color ribbon, etc. Every late style feature and modern operating convenience. Perfect appearance, perfect action and absolute dependability. Sent anywhere on approval. Catalog and special price **FREE. HARRY A. SMITH (314), 218 North Wells Street, Chicago, Ill.**



**1200 TO 1 BEAN.** A Gigantic Wonder—over 200 pods have been grown on a single plant—all well filled, producing over 1200 beans from 1 bean planted. Plants grow strong and erect, branching out in all directions, bearing pods up well from the ground, which literally load the plants; beans being pure white and of best quality.

Plant in your garden or any good soil, after danger of frost, any time up to June 15 only 1 Bean in a hill, and it will mature a crop in about 80 days, ripening very evenly, and the growth and yield will simply surprise you. My supply is limited and I can offer only in **sealed packets**, each containing over 60 Beans with growing directions. Order early to be sure of them.

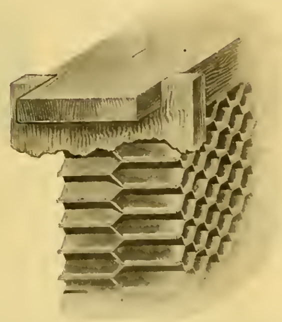
**Sealed packets 10c each; 3 pkts. 25c; 7 pkts. 50c; 15 pkts. $1 postpaid.**

My New Seed Book is filled with **High Grade Garden Seeds** at lowest prices. It's mailed free. **F. B. MILLS, Seed Grower, Dept. 41, ROSE HILL, N.Y.**

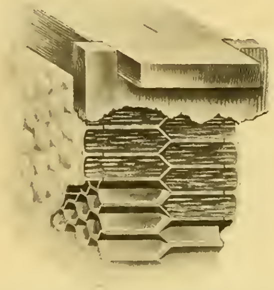
One of the Leading Bee Authorities of the United States is of the opinion that

# The Aluminum Honeycomb

**Is "The Greatest Single Appliance for Beekeeping that has been invented since the Extractor and Bee Comb Foundation"**



A Cross-section of Brood and Honey Aluminum Comb showing the size and shape of its cells.



The Aluminum Honey Comb is uncapped the same as a wax comb. Note in the above cut how bees build on a wax capping, which makes it easily uncapped with an uncapping knife.

## WE GUARANTEE THAT THE ALUMINUM COMB WILL

Increase your production.
Enable you to control foulbrood and other diseases.
Prevent destruction from moths and rodents.
Control the breeding of drones.
Prevent loss from melting of combs.
Save in labor and worry.
Last forever with proper care.

In California, where the Honey Flow has started, thousands of these combs are in use and are now completely filled with brood and honey.

**Price $6 for Ten Combs, F. O. B., Los Angeles, Cal.**

ORDER TODAY FROM

## THE ALUMINUM HONEYCOMB CO.

**Sales Offices: 600 Central Building, Sixth and Main Streets**
LOS ANGELES, CAL.
**Factory at Upland, Cal.**

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 36.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

## EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but **the difference in quality vastly more than compensates for the difference in price.**"

**A word to the wise USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

## BEE SUPPLIES

¶We carry a complete stock of supplies at all times, and can make prompt shipments Our prices will interest you.

¶A trial order will convince you that our prices and goods are right.

**Send Us Your Inquiries**

**A. H. RUSCH & SON CO.**
**REEDSVILLE, WIS.**

## BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, $2; untested, $1.50. Price list free

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

### Archdekin's Fine Italian Queens and Pound Packages

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

### Golden Queens

After April 1, untested $1.25 each, 6 for $7, or $13 per doz. or 50 for $48. Also untested 3-band at same price; tested, $3 each, and my very best $5 each. Satisfaction.

**R. O. COX**
**Route 4, Greenville, Alabama**

**Don't stop advertising.**
because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 85c.
**American Bee Journal Hamilton, Illinois**

## WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

### Established 1885

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

Mr. Beekeeper: Do you realize the busy season is at hand with prospects the best they have been in a long time? (Bees are strong and clover making rapid progress.)

Also, in concluding your plans, have you considered those customers who will buy and eat your comb honey, but will not touch your extracted honey at any price? Remember the successful manufacturer and producer turns out what the customer wants, not what he wants to produce. Remember the demands of the market.

Transportation is slow and uncertain. However, we have a complete and liberal stock of Lewis Beeware (Made like Furniture) and Dadant's Foundation (the leading Foundation manufactured in the World.) These Superior goods are at as low a price as sound business will warrant, not a price based on cheap, shoddy goods that can never please you any more than second-hand furniture or an old worn-out car or truck.

Parcel post orders receive prompt shipment, as do express orders, or better yet, if you live in driving distance, take your truck or car and come over and you will have what you want when you want it.

Have you our Lewis Bee Supply Catalog, or Beginner's Book? If not, a postal card will bring same. For Service and the Best in Apiculture, address the

**DEROY TAYLOR CO., Newark, Wayne Co., New York**

Do not forget the State Meeting at our Home Apiary August I.

MARSHFIELD GOODS

BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

A BIG STOCK OF

BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

PORTER BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

BEEKEEPERS

Do not wait until the last minute to order your supplies. Order now.
We carry a complete line of beekeepers' supplies. Send us a list of your requirements for this season and we will quote you our lowest prices.

**Send for our 1919 Catalog**

**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

"QUEENS OF QUALITY"

The genuine "Quality" kind of 3-band Italians—bred strictly for business. Write for circular.

**J. IVAN BANKS, Dowelltown, Tenn.**

BARNES' Foot-Power Machinery

**Read what J. I. Parent, of Charlton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.**

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

# REWARD

GOOD TILL MAY TWENTIETH

**Find the Mistake in our NEW CATALOG No. 114**

Look thru that catalog right now (if you haven't a copy ask us for one,) when you find the mistake write us about it, make out your order for supplies and keep 2 per cent of the amount of the bill as YOUR REWARD.

MADE RIGHT
BEE SUPPLIES
*Quality .... Service*

The Time is Limited **HUNT UP THAT MISTAKE NOW,** while you're thinking about it.

**THE KRETCHMER MFG. CO., Dept. A, Council Bluffs, Ia.**

# REAL PEOPLE

**That's what the doughboys called The Salvation Army workers on the battle-fields and back of the lines in France.**

**They were "real people" to the soldier, because they were just like the folks back home, with hands accustomed to work and eyes always ready to smile.**

And now these same "real people" back from the war with new laurels, have built their trenches in the Streets of Poverty in America. They well wage the fight for the poor and unfortunate at home, just as they have done for years, only on a larger scale.

The Salvation Army conducts Rescue Homes—Day Nurseries—Homes for the Helpless Aged—Lodging Houses for the Down and Outers—Fresh-Air Farms—Free Clinics.

It must extend this service everywhere where Misery and Poverty exist. It must continue to reach down and lift up the men, women and children who have fallen.

## WILL YOU HELP?

**THE SALVATION ARMY HOME SERVICE FUND MAY 19 TO 26**

*Do you realize,
Mr. Beeman,
that
the first of March
has passed?*

June will soon be here
with its
hustle and bustle
for
*Bee Supplies*

"GRIGGS SAVES YOU FREIGHT"

**TOLEDO**

Why not send us your order now and get the goods ready? Don't delay. A list of goods wanted brings prices back by return mail.

***BEESWAX***

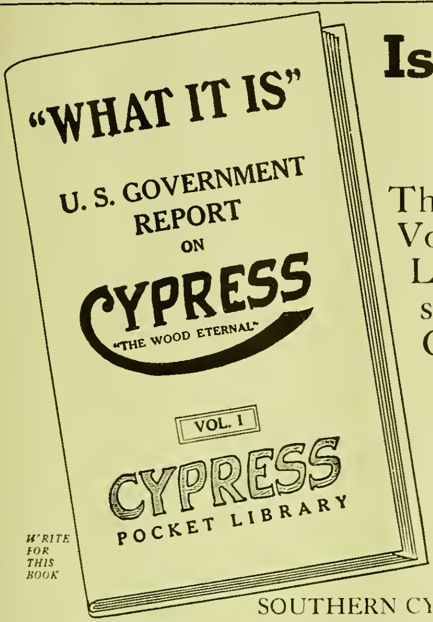
We use large quantities. Cash or in exchange for supplies. FREE catalogue ready to mail.

*S. J. GRIGGS & CO.*

*Department 25* *TOLEDO, OHIO*

"GRIGGS SAVES YOU FREIGHT"

Now is the time to advertise Honey. Send to the American Bee Journal for new Honey Label Catalog



# Is Uncle Sam's Word Good Enough?

Then Mr. Bee-man, just write for Volume I of the Cypress Pocket Library and read what our respected Uncle has to say about Cypress ("The Wood Eternal.") You'll then see why any beehive, or bottom or winter case not made of Cypress is not so good as it might be. 42 other volumes all free. The list is in Volume I. Write and it comes.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, *LET US KNOW IMMEDIATELY*

## Service and Quality

**Bee Supplies** **Bee Supplies**

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

**C. H. W. Weber & Company**
**2146 Central Avenue**
**CINCINNATI, OHIO**

PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**
**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# ROOT'S GOODS GO ROUND THE WORLD

**In One Week,** during the month of February, 1919, orders or inquiries for **Root** supplies were received from the following countries

CHINA
JAPAN
AUSTRALIA
EAST AFRICA
INDIA
BRITISH ISLES
FRANCE
DUTCH EAST INDIA
GUATEMALA
SPAIN
HAWAII
NEW ZEALAND
PORTUGAL
GREECE
SIBERIA
SWITZERLAND
ITALY
WEST INDIES
CENTRAL AND SOUTH AMERICAN COUNTRIES

Such world-wide distribution is the result of a name and reputation built up on the solid foundation of business integrity, fair dealing, unsurpassed service and

FIFTY YEARS OF EXPERIENCE IN MAKING GOODS OF HIGHEST QUALITY

## THE A. I. ROOT COMPANY

MEDINA, OHIO

New York
Chicago

Philadelphia
St. Paul

San Francisco
Norfolk

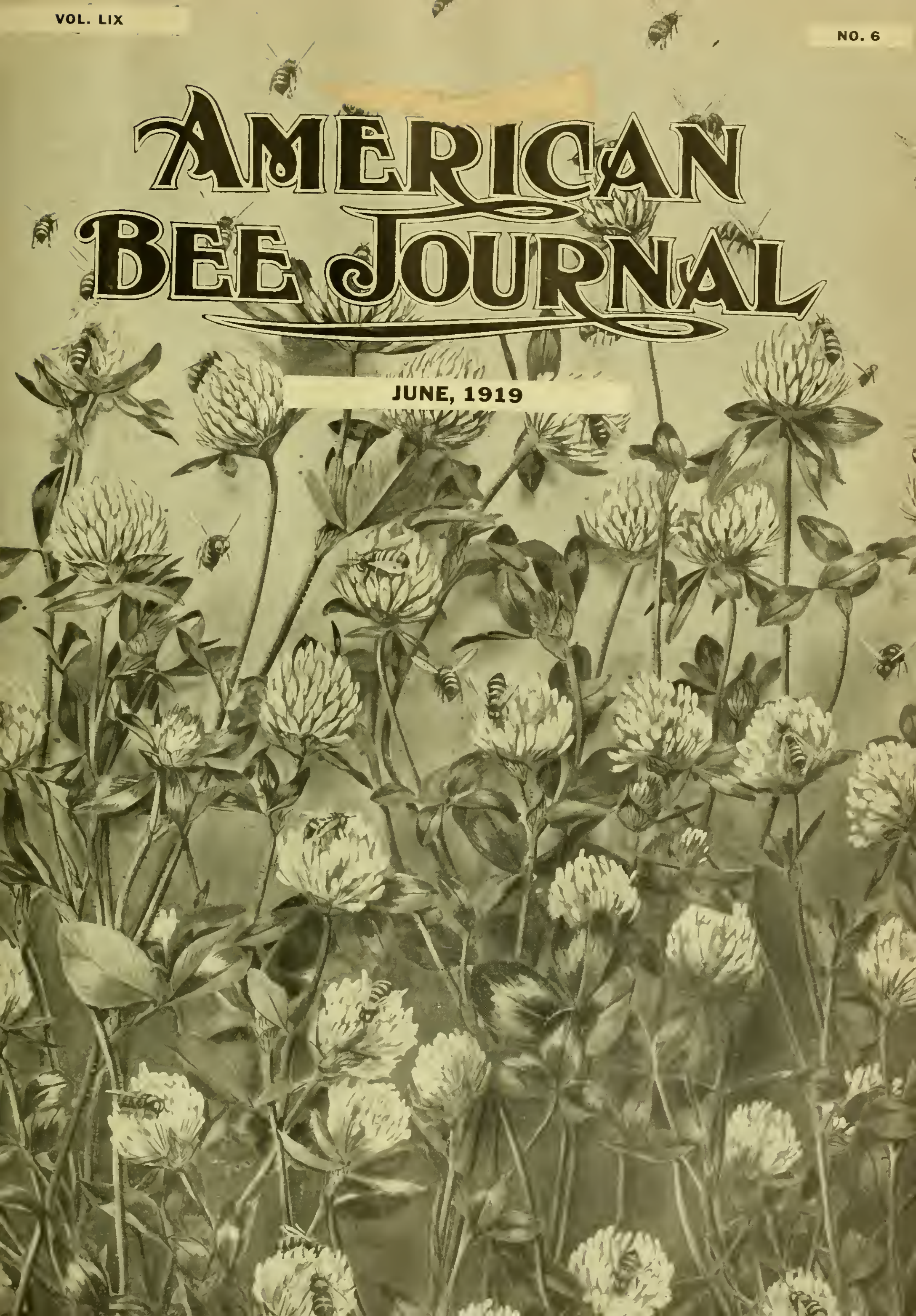
Los Angeles
Indianapolis

VOL. LIX

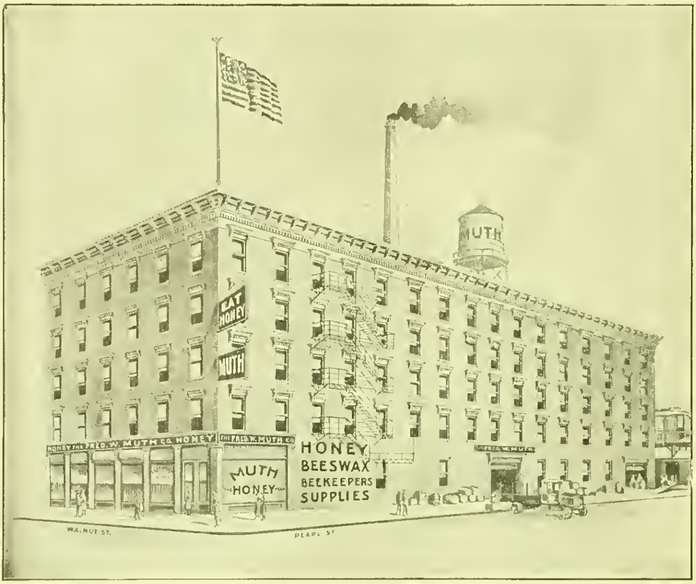
NO. 6

# AMERICAN BEE JOURNAL

JUNE, 1919



# Here's a Reproduction of Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

**LEWIS' BEEWARE**

**DADANT'S FOUNDATION**

**ROOT'S SMOKERS, EXTRACTORS, ETC.**

**OLD COMBS AND CAPPINGS**
Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**
Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

**THE FRED W. MUTH CO.**
Pearl and Walnut Streets
CINCINNATI OHIO

"THE BUSY BEEMEN"

# Four Bee Books

YOU SHOULD HAVE

IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

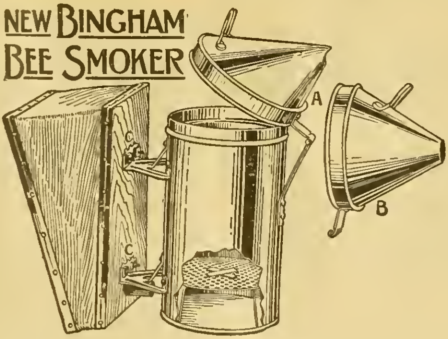
**Price $1.50**
Mailing weight, three pounds

ALL FOR SALE BY

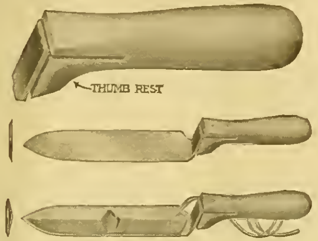
**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

---

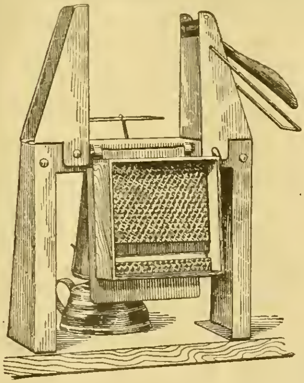
# NEW BINGHAM BEE SMOKER



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all important tool of the most extensive honey producers of the world. It is made in four sizes and has a leather bellows.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids, and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old-timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

The above specialties can be secured from us direct by post, or from practically all dealers and manufacturers of supplies, with the exception of the Root Company, and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

### TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60 pound Cans, giving quantity wanted.

## A. G. WOODMAN CO.

GRAND RAPIDS, MICH., U. S. A.

"falcon" **BEE SUPPLIES** "falcon"

HIVES, SUPERS, FRAMES, SECTIONS, FOUNDATION

**In fact anything in the line of Bee Supplies**

Have you ordered your supplies yet for the season of 1919 which is now with us, or are you waiting for the last moment to come around when the supplies now carried in stock will be nearly exhausted, or the shipping department so busy that they will not be able to give you the quick service which you naturally expect? Just stop and think what would happen if all beekeepers would do this. To relieve the situation and to help conditions in general, get your order in at once.

We are prepared to make immediate shipments from our large warehouses, which were packed to the brim before the season started.

You all know what the **"Falcon"** line is, and you ought to know what the **"Falcon"** service is. If you never ordered from us before, better let us have the next order to convince you not only for once, but forever.

Send for the Red Catalog and "Simplified Beekeeping"

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Best Beehives Come From**

**ANOTHER REPORT ON "SUPERIOR" FOUNDATION**
**READ THE FOLLOWING**

Superior Honey Co.,
Ogden, Utah.
Annabella, Utah, May 7, 1919.

Gentlemen: I am shipping you 41 pounds of beeswax. Your foundation is the best I ever used. The bees take to it quicker. I will send you some more wax and get more foundation. Please send two or three shipping tags.

Yours truly,
G. H. ROBERTS.

Let your own bees prove to your satisfaction the merits of **"SUPERIOR" FOUNDATION.** We guarantee it to be unsurpassed in quality by any other make. We are operating to utmost capacity to take care of the heavily increased demand. Write or telegraph for special prices.

**SUPERIOR HONEY CO., Ogden, Utah**
(Manufacturers of Weed Process Foundation)
**"Everything in Bee Supplies"**

**The Diamond Match Co.**
**(APIARY DEPT.)**
**MANUFACTURERS OF**
**Beekeepers' Supplies**
**CHICO, CAL., U. S. A.**

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
**Apiary Department** **CHICO, CAL., U. S. A.**

**EARLY ORDER DISCOUNTS WILL**
**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**
**or J. W. ROUSE, Mexico, Mo.**

**MOTT'S NORTHERN-BRED ITALIAN QUEENS**

that resist disease well, therefore must be hardy, prolific, and hustlers; they are gentle. Untested, $1 each, 6 for $5.50, 12 for $10. Select tested, $2 each. Plans, "How to Introduce Queens" and "Increase," 25c.

**E. E. MOTT Glenwood, Mich.**

# Home Wax Rendering—Does It Pay?

More and more we are becoming a nation of specialists. In former times, for various reasons, it was advisable to spin cloth at home, to make clothes, to grind flour, etc.

Yet it is seldom that such operations are undertaken now by the individual family. It does not pay. The time spent if valued at anything, would more than pay for the finished product.

Not only are you saving time, but also beeswax as a battery of high pressure steam presses under the supervision of a specialist can get more wax out of the same amount of combs than can the individual beekeeper with a makeshift press on a kitchen range.

> Dear Sirs:
>
> "Your bill for rendering beeswax, enclosing check for $21.65, to pay for wax retained by you was received yesterday. I am very much pleased with the result of my sending old combs to you. The quantity of wax secured is greater than I expected and the exceeding promptness with which the matter was attended to was very gratifying. If I have combs of the same kind to be rendered again I shall certainly send them to you."
>
> February 16, 1919 HANNAH R. SEWELL, Forest Glen, Md.

> Gentlemen:
>
> "Your statement of wax rendered and bill for making same into foundation is received. I enclose check for $7.93 for the balance due you. You got 25 pounds more of wax out of it than I estimated and I also got rid of a messy job.
>
> FLOYD MARKHAM, Ypsilanti, Mich.

Send us your refuse, scrapings, combs or cappings.

When shipping same be sure to bill as **Beeswax Refuse** so as to get the lowest freight rate.

**PRICES AND TERMS ON APPLICATION**

**DADANT & SONS, Hamilton, Illinois**

# THE PENDULUM SWINGS

## DON'T BE CAUGHT WITH AN OVER PRODUCTION OF EXTRACTED HONEY

¶Have you ever watched the pendulum of a clock?—You know it always swings back at the end of its arc. - Watch the pendulum of extracted honey prices.—Experts in the marketing of honey say high prices are based largely on export demand.

## NOW LISTEN

¶From July 1st, 1918, to February 28th, 1919, there were over seven million pounds of honey exported from this country (these figures are from the U. S. Bureau of Foreign and Domestic Commerce)—When the foreign demand falls off during the reconstruction period and when production abroad is renewed what will happen to extracted honey prices and where will you be then, Mr. Extracted Honey Producer?

¶Better put on a few comb honey supers this year—it will pay.

### Buy Lewis Sections---They are Best

WRITE FOR A CATALOG OF LEWIS BEEWARE—IT'S FREE

THERE IS A DISTRIBUTOR NEAR YOU

### Booklets on Beekeeping

The G. B. Lewis Company has prepared a series of "How" booklets on various phases of beekeeping for distribution to beekeepers. The information contained in these booklets is authoritative and has been prepared especially for beginners in bee culture. A nominal charge of 5 cents, postpaid, is made for each booklet to insure their distribution to interested persons. "How" booklets now ready for distribution are:

"How to Manage Bees in Spring."
"How to Prevent Swarming."
"How to Buy Queen Bees."
"How to Start Beekeeping."
"How to Locate an Apiary."
"How to Feed Bees."
"How to Transfer Bees."
"How to Care for Nuclei."
"How to Unite Bees."

THIS IS THE BRAND

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS U.S.A.
MAKES THE FINEST

LOOK FOR IT

### Free Beekeeping Advice

The G. B. Lewis Company will welcome the opportunity to aid any beekeeper in solving apiary problems and offers the benefit of the advice of the experienced beekeepers associated with the Lewis Company. If the information can be gotten we can get it. No charge will be made for this service, which will be available to all beekeepers at any time. Enclose a stamped, addressed envelope to insure our mailing a reply correctly, in case you are writing for information only. Write all inquiries on a separate sheet of paper from other correspondence, addressed to the G. B. Lewis Company, Watertown, Wis., attention of Bee Specialist. Lewis experts are in touch with beekeeping in all parts of the world.

## G. B. LEWIS COMPANY, Manufacturers of Beeware

WATERTOWN, WIS.

AMERICAN
BEE JOURNAL

VOL. LIX—NO. 6 HAMILTON, ILL., JUNE, 1919 MONTHLY, $1.00 A YEAR

# SWARM CONTROL IN THE PRODUCTION OF EXTRACTED HONEY

By C. P. Dadant.

WITHOUT doubt it is easier to control swarming when producing extracted honey than with comb-honey production.

We do not like to bother with any of the remedies offered for preventing swarms after the bees have shown a disposition to rear queen-cells. We prefer to forestall the tendency to the rearing of queen-cells. This may not always be done. Yet in an experience of some 50 years, we find that not over 5 per cent of the colonies run for extracted honey will swarm if the proper requirements are understood and provided.

Although swarming is a natural act in the cycle of a colony's existence, it is induced by causes which are mainly under the control of the apiarist.

Lack of room, decrease in the opportunities for ventilation in hot weather, increase in the temperature of the bee-hive to the danger point, overcrowding of bees, desire to rear young queens to replace a possibly failing mother, these are the main inducements to swarming.

When we speak of lack of room we must think of it in two ways: lack of breeding room for the queen, lack of storage room for the incoming honey.

From these two points we determine that we cannot prevent swarming unless the brood-chamber contains a sufficient number of cells to accommodate the egg-laying power of the queen as well as to store the pollen and honey necessary to the sustenance of the hatching larvæ. Neither could we succeed in preventing it, if, the supers being insufficient in space for honey, the bees were compelled to place the fresh-gathered honey in the brood-chamber as fast as young bees hatch out.

So we must have both a large brood-chamber and large supers. The latter must not consist simply of empty frames with strips of foundation guides. A sudden honey flow, coming before the bees have had time to produce wax to build comb, would give every bee an opportunity to fill herself with honey, without room to unload this honey, and a swarming fever would quickly be the result. So we must try to provide, beforehand, a large number of empty combs in our supers and place them over the brood-chamber before the bees feel the need of them.

Decrease in the opportunities for ventilation.—A the hive becomes more fully populated, young bees hatch daily by thousands, and the workers go back and forth through the entrance in constantly increasing numbers, the opportunities for ventilation decrease. We should not forget that each colony, in warm weather, must send a current of air through the brood-combs to the remotest part of the upper story and back and out again, in order to properly ventilate. As the population increases, we increase the space available for ventilation, by raising the hive from its bottom, in front, as much as necessary to make the colony comfortable. This may require a space of from half an inch to three inches. It is even sometimes necessary to "stagger" the supers, placing them back or forth slightly, so as to leave an opening of a quarter inch or more, between them and the body of the hive. This method is to be resorted to only when the lower ventilation is deemed insufficient. We must be sure that our bees are **not** idle for lack of plenty of room or ventilation.

Touching the subject of ventilation, it becomes more and more evident to me that the spacing of combs one-and a-half inches from center to center, is one of the best helps for the prevention of swarming, as compared to the one-and-three-eighths spacing existing in most of the factory-made hives. This spacing not only gives an additional amount of clustering space for the bees, but increases the facilities for ventilation, without any disadvantages whatever. At least, since I have championed the wider spacing as necessary, I have found no valid objections to its use. The addition of some 150 cubic inches of breathing and clustering space, between ten combs of brood in a hive, is an important matter.

The overcrowding of bees is greatly increased when a colony is permitted to produce a large number of drones. The drones are in the way, remaining clustered in the brood-chamber at all hours, except during the warm part of the day, at the time when the workers are busiest going back and forth, when they, also, take flight and annoy them with their activity. In some hives, where the apiarist has failed to control their production, one may find as many as 2,000 or more of these idlers, who consume honey and get in the way of the workers. It is a loss in every way to permit them to be reared. Better cut out the drone-comb in early spring and replace it with worker comb. The bees will always manage to rear a hundred or two of the drones in out-of-the-way corners, but so small a number will not be objectionable.

In our hot countries, in order to prevent the increase of heat to the danger point, it is also necessary to shelter the hives from the heat of the sun. In northern climes, where the sun's rays are more oblique, this matter is of less importance. But at the latitude of our own location, which is the same as that of Naples, Italy, or of Madrid, Spain, and at low altitude, it is almost indispensable, if we wish our bees to feel comfortable, to have our colonies well shaded from the sun, whether under trees or under a roof, or both.

The last, and one of the most important requirements for the prevention of swarming, is a young queen, so that she may not indicate, by her decrease of laying during the active season, that she is failing in her ability to sustain the strength of the colony. The entire force of a hive depends upon her, since she is the mother. If she should fail, leaving no other fully developed female to take her place, the hive would be doomed to destruction. It is therefore very conceivable that the bees should show great anxiety and foresight upon this matter. Whenever she decreases her activity in laying, at the season of high breeding, the bees prepare to replace her, by building queen-cells. This angers her, if she is still sufficiently active to resent it, and she soon leaves with a swarm. When all other contingencies have been provided for, this is the most common cause of the production of swarms.

Many beekeepers, who wish to keep active queens in their colonies, replace the queens of all the colonies annually. Personally, I believe this is unnecessary. Many queens are better in their second year than in the first. Many are just as good. If we take in consideration the cost of new queens, the chances of securing a poorer queen than the one which we know to be good in a colony, we will conclude that is is well to give our **good** queens a two-years' lease. I emphasize the words "good queens," for if we have poor queens, we cannot replace them any too soon.

The replacing of the queens at least every two years will insure us against much queen-cell building for superseding queens.

The reader will take notice of the fact that the foregoing requirements for the prevention of swarming do not require much labor at swarming time. We replace our queens in early spring, and the only requirements in the busy season are such as are necessary under any conditions, giving more ventilation, more supers.

If, however, the beekeeper wishes to entirely prevent swarming, he may go to the trouble of examining the colonies inside, from time to time, and if any swarming preparations are under way he may employ any one of the numerous methods recommended for interfering with natural swarming, even to making forced swarms or removing the queens and all the cells but one. If the above-given methods are followed, in the production of extracted honey, very few swarms need be expected.

## Control of Swarming With Comb Honey

By C. C. Miller

If one were undecided whether to work for extracted or comb honey, the scales might be turned in favor of extracted upon thinking that it is easier to prevent swarming when working for extracted honey, and that if swarming does occur the effect upon the crop of comb honey may be almost disastrous while making much less difference upon a crop of extracted honey.

Of course, some of the things that help to control swarming are the same, no matter what kind of honey is produced, such as shade for hives, large brood-chambers, spacing combs an inch and a half from center to center, suppression of drones by having all worker-comb, etc. In some things, however, you cannot work the same.

Take ventilation. Make a large opening between two extracting supers, and although you may stop all storing near that opening, it need not make a crop less, for the honey will be stored elsewhere. Do the same thing with section-supers, and you have a lot of unfinished sections on your hands. And yet ventilation is very important when producing sections. At the bottom of the hive there is the same opportunity for ventilation as with extracted honey. The entrance can be large, the hive may be raised on blocks at the corners, or the bottom-board may be 2 inches deep, with a bottom-rack to prevent the bees from building down. But if any opening be made above the brood-chamber, the cold air entering at that point will interfere somewhat with storing there, and very much with sealing.

Yet ventilation is such an important factor in the control of swarming that the good resulting from it overbalances the harm. The super that sits on the hive should be shoved forward so as to make a space of a quarter of an inch or more between hive and super at the back end. That will hinder storing and finishing in the lower super and in one or two next above, yet I have known it the case in a hot spell for these rear sections to be finished more readily than the sections in the middle of the super.

Master Tenaka Kurihara Ishida's unappeased appetite for honey

I never tried making ventilation-spaces between supers, but I have tried having an opening over the top super over the central sections. First is a thin cover over the super having an opening in its center 5 or 6 inches square. On each end of this lies a strip three-eighths thick, and on this is placed the regular cover. That, you will see, leaves an opening of three-eighths of an inch for the air to pass through between the two covers.

I cannot speak very definitely as to the effect of this top ventilation, not having given it much trial, for soon after devising it I changed from section honey to extracted honey. But I regard it hopefully.

Whether all these things have been done or not, suppose a colony takes it into its head to swarm, what is to be done to head it off? To get advance information upon the subject it is indispensable to look inside the hive. If no queen-cells are started there is no thought of swarming. A little before the time when swarming is likely to begin, if we find no cells started in a number of the strongest colonies, it is hardly worth while to look through the rest of the apiary. A second examination is made perhaps ten days later, and at intervals of 10 days thereafter. Whenever queen-cells are found they are destroyed. After cells are once destroyed, it will happen in rare cases that they will not be started again. Generally, however, cells will be found upon the next inspection. If only eggs or young larvæ are found in them, they are destroyed, and in some cases this may continue throughout the season. Indeed, there may be colonies that never start a cell all summer. But if big larvæ are found in the cells, pretty well filling them, that may be considered as due notice that the bees will no longer brook any trifling, but will swarm before another ten days if vigorous measures are not taken.

At this point a swarm may be shaken, as it is called, which consists in taking away all but one brood. This leaves the colony practically in the same condition as if a natural swarm had issued. It has, however, the advantage that all the bees may be left on the old stand, making it stronger for storing. Of course, if increase is wanted, enough bees may be taken with the brood to take care of it, and being set upon a new stand, a new colony may be started, which will be in the same condition as the mother colony when a natural swarm has issued. This plan of shaking a swarm is an advisable proceeding when increase is desired, or when the brood that is taken away can be used with profit elsewhere, but if we want all the bees and all the brood to remain with the old colony, then a different course must be taken.

The Demaree plan, putting all but one brood above an excluder, is barred out for comb honey, the brood-combs put above the excluder becoming extracting-combs, and we do not want extracted honey. We might compromise by putting the brood-combs above the sections, but if we do that the bees will carry down from the brood-combs bits of dark wax to spoil the snow-white capping of the sections, and that will never do.

The thing to be done is to stop the queen from going with a swarm and from laying until the bees have gotten over their swarming fever, which will be in about 10 days. Different ways of proceeding may be adopted. One way is to kill the cells, cage the queen and leave her caged in the brood-chamber for about 10 days, then kill all cells and release the queen.

Another way is to kill all cells, take away the queen with two frames of brood and adhering bees, put them in a hive, as a nucleus, on a new stand, then in 10 days kill all cells in the old hive and return the queen, either with or without the nucleus.

Later on the colony may take the notion to swarm again, when the treatment must be repeated. But the most satisfactory thing is, after 10 days of queenlessness, to give a young queen of the current season's rearing, after which there will be no further thought of swarming by that colony till the following year.

The reader who is interested in fuller particulars of this subject will do well to consult my book, "Fifty Years Among the Bees," in which 30 pages are occupied in discussing control of swarming.

The Blue Curl in bloom

## My Neighbor's Garden

By C. D. Stuart

IT happened earlier in the fall. The Magic Girl had been telling stories to the neighbors' children, who never grew tired of hearing about the bees and the wonderful sweets they steal from the flowers and store away in their hives, when Jimmie slipped away unnoticed. Soon there was a scream, followed by a great commotion in the literary circle. Mad bees were attacking right and left. The Magic Girl herself experienced her first contact with the Bolsheviki end of the honeybee, even while hustling the children to safety.

I rushed to the apiary swearing vengeance on the offenders, if found; if not, then the innocent must suffer with the guilty. A man must protect his family, and a mad bee is no imaginary foe. Instinct guided me to a colony of blacks that for weeks had refused a queen, but which had recently accepted, on probation as it were, a newly-hatched Italian. There on his knees in front of the hive was Jimmie, industriously poking a stick into the entrance, and now and then curiously watching the strange behavior of some bees on the landing-board.

One glance was sufficient. They were balling something, and the wonder of it was that they had not balled Jimmie instead. A puff from the smoker dispersed the savages, but not before the ball had rolled onto the ground. A large yellow queen limped away, pursued by a worker more persistent than the others, that still attacked first on one side and then the other, to simulate a large force in pursuit, perhaps, till the queen, overcome, gave up the unequal struggle.

Jimmie turned the dead queen over with his stick and listened to my lurid remarks. I might mention that his baptismal name is Tenaka Kurihara Ishida, americanized by the Magic Girl to "Jimmie." He was small, almond-eyed, and minus two front teeth, neither of which happened to be the sweet one.

"Honey all time stay up in air," he offered by way of explaining his presence in the apiary, and pointed wistfully to the tier of supers filled with honey which had been left over the colony to ripen. Neither was he remorseful over the fate of his playmates, while the sight of the Magic Girl's closed eyes and puffed face appealed to his Oriental sense of humor. "All samee God-Damn-Lady," he observed, no doubt having in mind the corpulent resident missionary to the Japanese in our midst.

The next time Jimmie's mother came to do up the house, as a matter of personal safety and that of my neighbors, I found it expedient to form a league of two nations, and thereafter accompanied Master Ishida to my apiary. It was too late in the season to sustain the loss of other queens. The days were getting perceptibly shorter and there was a suggestion of frost in the air. It was time to contract hive-entrances, nail down covers and go away somewhere

Honey all time stay up in air

with the Magic Girl for a winter vacation; but like every other good beeman, I wanted first to feel secure in the knowledge that each colony was queenright and snug for the winter, and to be detained by one small bee, although of royal blood, was most exasperating.

I hardly knew how to meet the emergency which Jimmie's unappeased appetite for honey had created. The nectar from flowers in my neighbor's garden was at a precariously low ebb, and only a few drones were flying. To rear another batch of queens under such conditions would be a gamble; but with blue curl and tar weed along the roadsides and in the fields, I decided to take a chance. Also Jimmie, with covetous eyes on the honey-filled supers brought daily offerings of belated sweet clover and alfalfa and laid them in neat bunches at the hive entrances.

Blossoms of the tarweed

I soon had the necessary queen-cells, which I placed in the belligerent colony and left the bees to their own devices. Jimmie, with what strange workings of conscience over the lost queen I could not fathom, shared my labors. He witnessed the grafting of the new queen-cells from my best breeder, watched the cells fill with jelly and grow until finally the cap was fitted on; and when the first virgin came walking out of her cell to which the cap was still attached by a tiny wax hinge, "All samee littee door," his excitement knew no bounds.

Then came the period of waiting when I was afraid to open the hive for fear they would ball their queen, and afraid not to for fear they had already balled her.

But one day I did look, Jimmie, my faithful ally, at my heels. The colony was lamb-like in disposition, but no queen could I find. The next day it was the same, also the third day. The colony appeared to be contented, though there was no brood or other sign of a queen. I had about conceded her loss in mating, but Jimmie subtly associating the return of the queen with a plentiful supply of honey for himself, continued to hope against hope. Each morning found him at his post in front of the hive with his floral offering, and each evening a disappointed little Jap trudged homeward.

Thanksgiving day arrived and with it Jimmie, to begin his morning watch. The air was soft and balmy, an ideal day for bee work. For the third time I opened the hive containing the colony of blacks. But my last young virgin was not laying, nor was she to be found. Three weeks had elapsed since the date scheduled by the books for a normal queen to assume the duties of family life, and I began preparations to combine the bees with another colony. But Jimmie's expression deterred me. He knew few "Mellican" words. They were not needed. His troubled face was sufficiently eloquent, and I decided to wait still another day.

About noon a radiant Jimmie came flying to the house. "Honorable Missy President, she go in! She go in!" he shouted.

A few moments later I found her, nuptial insignia intact, a lovely yellow against a sinister background of black German bees.

Los Gatos, Calif.

## More About Punics

IN our November issue we published an article by Ph. J. Baldensperger in which he takes issue with certain statements of Mr. Hewitt in regard to the Punic bees. First he lists 18 claims made for these bees by Mr. Hewitt and replies to each by corresponding number. Our readers can judge for themselves whether one writer is entitled to more credence than the other.

We have since received a very lengthy reply from Mr. Hewitt in which he reviews the history of the introduction of Punic bees into England and America. We have no space to include the entire article, but we wish to be entirely fair with Mr. Hewitt and to give him an opportunity to state his case. Mr. Hewitt declines to permit us to print any part of his article, unless we include it all, hence we are compelled to decline, since there are 80 pages of manuscript. In order that our readers may be informed as to his claims for these bees, we make the following resume of his reply:

1. He has kept pure Punic bees for 32 years and has sent out thousands of queens, without any complaint on the part of his customers, that they were not as good as represented. He does not withdraw a single item of what he has claimed for Punics.
2. It is difficult to mate them purely if drones of other races are within five miles.
3. He claims that since 1887 he has been able to rear queens from the eggs of fertile workers as often as desired, and that they prove to be normal queens in every way.
4. He has from time to time made attempts to make known the fact that fertile workers of the Punic race are able to produce female offspring with the result that he has been discredited.
5. Under certain conditions they build few queen-cells, but at times they build very many, he having had as many as 500 on one comb alone.

In looking back over the article complained of we cannot see where Mr. Hewitt has suffered seriously. In the June, 1918, number, Mr. John Anderson pays him very high credit, and places him in the class with Huber, and other great masters. In the Baldensperger article, we find only a difference of opinion as to the character of the race of bees under consideration.

The only question at issue, as far as this journal is concerned, is whether or not fertile workers do in fact produce female offspring. If they do, Mr. Hewitt was probably the first to bring the fact to public attention. His observations have later been confirmed by Jacks and Onions, but questioned by other observers.

## Feeding Flour

IN the American Bee Journal for March, in the article "Building Up Colonies in Spring," flour is advocated for spring feeding.

I placed several granite pie tins and shallow pasteboard box covers containing a little wheat flour about the yard. The bees paid no attention to it, while two colonies actually starved.

What was my mistake? How should flour be fed?

NEW YORK.

Answer.—You made a mistake if you thought that feeding flour would keep any colony from starving. Neither the field workers nor even the larvæ can live on pollen only. The adult bees can live without pollen and thrive best without pollen whenever they are confined to the hive, as pollen loads their intestines.

On the other hand, it is proven that larvæ consume pollen, mixed with their food, during their growth. Pollen is probably needed to build up the structure of the bee.

Flour and substitutes are taken by the bees only when they have honey to dilute those ingredients. This is well proven, for pellets of such artificial pollen, dropped by the bees, are found to be moist and have a sweet taste. They evidently bring honey from the hive to dilute them.

As these products do not have the attractive odor of the pollen of flowers or the smell of the hive, it is usually necessary to attract them to the spot by placing in the boxes some pieces of old combs or a little strong-smelling honey. The flour should be packed with the hands so as to make a fairly firm footing, otherwise the bees may smother in it. After they find it useful they will attract others to it by their humming.

Substitutes are to be given only when there is no pollen whatever in the fields. We are told by scientists that bees do not digest starchy food and that it is therefore useless to them. It is even asserted that these substitutes will not feed the larvæ. But we have had our bees use hundreds of pounds, bringing honey to dilute it, and carrying it on their legs. We have seen it in the cells, in the hive, and have never seen any of it thrown out. So, until it is absolutely proven that the larvæ cannot digest it, we will continue our faith in the Dzierzon-Langstroth method of giving it to the bees whenever they cannot get natural pollen.

If you have the "Hive and Honey Bee, Revised," read paragraphs 263 to 270. You will find there the experiments made by Dzierzon and others on this subject.

We are told that bees will even carry coal dust to their hives in times of pollen scarcity. We have seen them tumbling about coal dust and sawdust, but have never seen any of these ingredients in the cells. There is a possibility that very fine sawdust might be used, since many insects consume wood fibre. But the bees' attempt at using it is only accidental.—C. P. D.

## The Red-Bud

THE Red-bud, or Judas-tree, **Cercis Canadensis,** is a common shrub or small tree in the southeastern States. It is found occasionally from Western Pennsylvania to Southern Michigan, Southern Iowa and Nebraska south to Western Florida and East Texas. It grows along streams and in the woodlands where the soil is moist and rich. In Alabama it blooms in late February, and in Southern Iowa in April. The rose-pink blossoms appearing in early spring before the leaves are out make the tree very conspicuous during the blooming period. Where the tree is abundant it furnishes a liberal pasture for the bees for early spring brood rearing. Blooming so early it is rarely the source of surplus. In the northern part of its range it often blooms with fruit trees and dandelion, so that it is not as important as farther south.

There is another species in South Texas and Mexico which blooms in March, the Texan Red-bud, **Cercis reniformis,** and one, the Western Red-bud, **Cercis occidentalis,** which occurs in the mountains of California, and occasionally in Utah.

The Red-bud is also known as salad-tree, or June-bud.—F. C. P.

## Beekeeping in Morocco

HERE is a little information on beekeeping in Morocco. The bees are black. The hives are made of cork and laid horizontally. In some regions they are very numerous and the Arabs harvest large quantities of honey which they bring to market in goat skins holding about 65 pounds. They transport this on camel-back or mule-back.

The honey is white, except that of the Sus valley, which is of golden color and of good taste. I bought large quantities, which I shipped to France. But I found one kind of white honey which burns the throat as if it contained lot of sting poison.

The Horticultural Society of Casablanca gives much attention to beekeeping. But movable-frame hives are scarce, and I don't know of any modern apiaries. The flora is rich in nectar from February to May. Just now the ravenelle (wild mustard), peas, peaches and almonds are in full bloom.

Swarms sell for $1, and heavy colonies may be had for $5. Honey sells now at about 30 cents per pound.

I am sorry not to be able to give you more details or to send you photos. I have been in the Convalescent Hospital here and am just about to return to France. Will write you again. QUINTIEN TOUREAUD.
Casablanca (Dar El Beda) Morocco.
Feb. 22, 1919.

Red bud in bloom

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

C. P. DADANT ............ Editor
FRANK C. PELLETT ............ Associate Editor
C. C. MILLER ............ Questions Department
MAURICE G DADANT ............ Business Manager

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

### To Boost Candy

It is reported that the candy manufacturers of the United States are raising a fund of half a million dollars for the purpose of launching a widespread advertising campaign. It is proposed to take advantage of the departure of alcoholic liquor and to induce the public to substitute candy for it.

In nearly all lines active business men are preparing a well-laid advertising campaign for the purpose of stimulating increase in the consumption of their product. Beekeepers should not overlook the value of advertising in creating a demand for honey.

### The Wide Spacing of Frames

The discussion of the distance between frames, from center to center, has been mentioned in Italy, and Alfred Marra, a beekeeper of Milan, reports in "L'Apicoltura Italiana," that after having had regularly from 50 to 80 per cent of swarms, he tried spacing the combs of his Dadant-Blatt hives at 38 millimetres (1½ inches). He had 25 colonies, 2 in Tonelli hives, 2 in Sartori hives and 21 in Dadant hives. Only one of the latter swarmed, while 3 out of the other 4 swarmed. Although he agrees that this is not a positive evidence, he is well pleased with the result

### Dixie Beekeeper

This is the name of a new bee magazine , published at Waycross, Ga., by our old friend and contributor, J. J. Wilder.

Friend Wilder has a very extensive acquaintance with beekeeping throughout the Southeastern States. He is a capable honey producer, one of the largest in the world, and ought to publish a good paper. The first number of his magazine was out in April. Write him at the above address.

### High Prices for Bees

The prices at which bees are selling of late would have surprised the most optimistic beekeeper two or three years ago. A newspaper clipping has come to our desk with the announcement of a sale of 150 colonies of bees for $3,000. Twenty dollars seems like a good price for a single colony of bees, and when large lots bring this figure it certainly indicates a prosperous condition for the industry.

It is well to bear in mind that the extremely high prices resulting from abnormal conditions created by the war are probably only temporary, and now is the time to prepare for the reaction that is bound to come.

### A Slogan for Selling Honey

Just at present the honey market is very dull, with a very strong prospect of falling prices. During recent months the beekeepers have been able to secure top prices for their products for the first time in several years. It is becoming more apparent every day that if we are to enjoy a good market in the future, the beekeeper must be very active in stimulating the demand for our product in every possible way. When buyers complain of high prices, it would seem to be wise for the beekeeper to compare the price of honey with butter. The public pays a high price for butter and does not regard it as a luxury.

Let us adopt as a slogan the following: "Less than the cost of butter, and a better spread." Such a line on our labels and other printed matter would serve to compare the price of honey with that of a commodity which the public regards as essential and for which it is willing to pay a reasonable price. We might change our honey stickers to "Eat Honey, Less Than the Cost of Butter and a Better Spread." By keeping this comparison constantly before the housewife we can do much to remove the impression that honey is a high-priced commodity.

Now is the time of great opportunity for the honey producers. It is not a question of creating a new market but only of retaining the market recently developed as a result of the extraordinary conditions growing out of the war. The judicious use of attractive printed matter together with properly worded advertising will go a long way in this direction. It will be far easier to hold the trade which is already developed than to rebuild it once the public has lost its taste for honey. The wide-awake beekeeper will not neglect to advertise his product.

### Honey Grading

Very often, our attention is called by beekeepers to the fact that not enough importance is placed on the subject of honey grading. In order to keep the honey trade satisfied, it is important that the honey which is furnished to the trade be strictly up to grade every time a package is sold. The only way a certain brand of honey can possibly gain a good reputation is by having all of the product up to grade.

In times past certain associations have had a brand for all of their members, and any member was entitled to use this brand to protect his goods. In our opinion, this was a mistake, as anyone might become a member of an association and use that brand. This same member might put up a poor article and in this way bring the brand into disrepute. It is our opinion that sooner or later all honey which goes into the hands of consumers should pass through a central grading plant. Whether the producer expects to ship his honey himself, or whether he expects to ship it to a local association, he would be benefited by having the inspectors' brand placed on his article. Of course, such inspection would have to be very rigid so as not to work injustice to the careful beekeeper who is already putting out a first-class article. At the same time, it would protect him against the careless beekeeper who puts up his honey in a slovenly way.

### Honey Market Reports

The attention of the beekeeper is called to our honey market report. In spite of the fact that last fall we predicted a clean market, there seems to be considerable more extracted honey left on hand than anyone had anticipated. This is largely due to the fact that many manufacturers who used honey instead of sugar in large quantities turned back to sugar as soon as sugar was released. Many of them are holding their honey for the same price that they paid for it, which was around 25 cents per pound in carload lots.

While there is some extracted honey still in the hands of the producers, this amount does not appear as large as in an ordinary season. However, it is bound to have considerable effect on the price for the coming year unless something is done to move this honey before the new crop is harvested.

In sharp contrast to the extracted honey market is the condition of the comb-honey market. There appears to be scarcely any comb honey at all offered and, in fact, it seems to be difficult to secure. The price is high, with little if any sign of weakening. Although the Dadants have been advocates of extracted honey for a great many years, it is their opinion this year that those who have comb honey equipment should, as much as possible, produce that article. Of course, something may happen which will relieve the extracted honey situation, but there is no doubt there is going to be a good demand for comb honey anyway, even though extracted honey should be plentiful.

A few beekeepers have made the remark that our market page was somewhat prejudiced because the Dadants were honey dealers. Let us state here that the amount of honey bought the past season did not amount to as much as what our crops very often total during a single season. In other words, we are not honey dealers in the true sense of the word, as we simply buy enough honey from beekeepers to supply our trade when we do not have sufficient crop of our own. We have no axe to grind and we ask the beekeepers to keep this in mind and make their reports just as true as possible, so we can in turn give reliable information to all of our readers.

## Increase With Large Hives

Question. Taking much interest in your articles about large hives, and large frames, I would like to know which method you use the most extensively and consider the best to make increase. We use the Dadant hive here, a so-called Jumbo hive, holding 12 frames, which make a brood-chamber that is none too big for the egg-laying capacity of some queens. RENE SAQUET,
Nantes, France.

Answer. In consideration of the fact that it is the strong colonies which yield the crop, we divide our apiaries into three classes: very strong colonies at the time of the crop, colonies that will become strong during the crop, and, lastly, colonies that will just hold their own.

The first class are the ones from which the crop will come. The third class are not to be depended upon at all, and if the fault is with the queen she should be removed and replaced by a better one. There are however cases, in most apiaries, where a little shortage of food, or a little neglect on the part of the apiarist, will cause a colony containing a good queen to be useless for that season, owing to the lateness of its building up. Usually those colonies of the third class are not numerous. They may be equalized at the expense of the others, but it is a question whether this is profitable.

It is from the colonies of the second class that we aim to take our artificial increase, because they do not become strong until the crop is advanced and many of their bees will help consume the crop instead of helping to produce it.

We begin by either buying queens or rearing some of our own. We will not go into the detail of this matter. Suffice it to say that if we rear our own queens, we breed them from the very best colonies we have. When the cells are built and ready to hatch, on the ninth day from the rendering a colony queenless, we divide each of our middling or second class colonies. On the tenth day we give each of the queenless halves a queen-cell, or a queen.

How to divide each of these colonies is probably what the reader will ask next. This must depend on the number of colonies wanted, the strength of those we have, the weather, the conditions of the crop.

If we want many colonies of increase, we may divide each colony in 2 or 3 parts, taking note of the queenright one. If we want only a few, we may just divide the colonies exactly in halves. If we need still less, we may make a swarm from 2 colonies, by taking the brood from one and the bees from another, putting the brood-combs with adhering young bees in a new hive on the stand of another colony, which we move to a new spot.

Divisions made of only 3 combs, during a good crop, may build up for winter, depending upon the weather or the honey yield. If they do not, we may be able to help them from the stronger ones, or even, at the end of the honey crop, from the very strong colonies that have given us the surplus.

Our plan in all this is to use the bees that hatch too late for honey in making swarms and retaining in full strength the honey-producing colonies, till the end of the harvest. This method has always given us the best results.

In carrying on a division plan of this kind—or of any kind—there are a few fundamentals to remember:

A queenless colony should not be allowed to build comb, as it would build mainly drone-comb.

A queenright colony, or that part of a divided colony will thrive most if it has a few young bees with the queen and plenty of field workers.

A queenless colony on a new spot will be the slowest to build up, unless it has some brood ready to hatch.

A queenless colony placed on the spot occupied by a full colony (removing the latter to a new spot) will be in danger of swarming when its queen-cells hatch.

A queenright colony from which nothing is taken but its field bees will recuperate soon, if there is any honey at all in the fields.

No colony with brood should be left so weak that its brood is likely to be chilled in cool nights.

If we supply all our divisions with full sheets of foundation or empty combs they will recuperate more promptly.

There are many other "ifs" which must be left to the judgment of the apiarist.—C. P. D.

### Information Concerning Crops and Markets

Our old friend, Mr. P. H. Elwood, sends us some complimentary remarks concerning our "Crop and Market Reports" and reminds the editor of the organization, in 1888, of the United States Honey Producers Exchange, an association for prompt and reliable information concerning the honey crop throughout the United States. Each month a report was sent by the Secretary to all the members, concerning the condition of the bees, the prospects, the crop, the markets, etc.

These statistics, gathered from reports sent in by the beekeepers themselves, were very useful, and the "Exchange" at first met with great favor among beekeepers. It was originally organized under the auspices of the New York State Association. Mr. Elwood was its President and G. H. Knickerbocker its Secretary. Many leading beekeepers were interested in it. But it lived only a few years, as its members neglected it.

# BEES AND BEEKEEPING IN THE ORIENT

By Ph. J. Baldensperger

YELLOW bees, in all the Levant, from Greece in the north, all around Asia Minor, down through Syria and Palestine and faraway Egypt in the extreme south group, are, so to say, all around the Island of Cyprus as the center point. They are yellowest in Cyprus and, as they are more distant from this center, gradually become darker.

On the Syrian coast, and up the Lebanon, the "Syrian race" is nearest in semblance to their ancestor, the Cyprian, as to size and color. Further down the country, south of the Lebanon and to the river known as Wady Ghuzzeh, below Gaza, lives the third race, the "Holy Land" bees. A fourth type, at least as large as the Cyprian, exists on the south extremity of Asia Minor, just north of the Island of Cyprus. The fifth type is the Egyptian, completely separated from its congeners of the Holy Land by the wilderness of Sinai. The Egyptian bee is far the smallest and the darkest of the yellow races.

I have seen and studied the Cyprians at Larnaka, Cyprus; the Syrians at Beirut and Sidon, Syria; the Holy Lands from Acre in the north to the Carmel—to Nazareth, and south to the plains of the Philistines, to Jaffa and Jerusalem; the Egyptians near Alexandria and Cairo, up close to the Pyramids of Ghiseh.

The Syrians and Holy Lands differ slightly from each other, but if Cyprians and Holy Lands are compared, the difference is more striking than between Cyprians and Syrians.

All these bees are very irritable if not handled carefully, and especially amply smoked before they are allowed to become over-irritated. Very adverse reports concerning them have been made by many writers, but I handled hundreds of full honey-producing colonies for over ten years in their native lands, and though I had many bad experiences with irritated colonies, yet when carefully handled, smoking them sufficiently and giving them time enough to know that they are going to be manipulated, they are as supportable as any other race. We had about 500 hives on the same square in the suburbs of Jaffa at one time, and as we were then (in 1885) five brothers, we decided that so many bees, with about 15 persons running about the yard, was too much excitement, and we separated them for the following years into several lots of a hundred to a hundred and fifty hives. There were plenty of orange trees in the immediate vicinity and we thought it necessary to separate them for short distances only. At one time in 1890 my elder brother was in charge of a hundred and fifty hives at not more than three hundred yards from the hundred and fifty in my charge. My brother was always in a hurry to finish his work and had two or three natives to help him—I am almost tempted to say—stir up the bees. As a matter of fact, animals and men were often stung when passing the road, a distance of 50 yards. In my apiary, where I used very little native help, especially about the bees, I never had any complaint of being stung; the above road leading past my apiary at the same distance as was my brother's apiary.

In Beyrout, too, the apiary was close to the windows of the garden house, below the American College, and before going to work in the apiary I could walk up and down or stand in front of a hive, watching the queens on their matrimonial excursion, without ever being molested. With help in the apiary and a man to hold the smoker and puff smoke at the bees when it is necessary, or abstaining from smoke in the nick of time, stings are not rare, even with the gentle Carniolans, to say nothing of our lively Levantines, beginning with the Cyprians.

The beautiful orange-colored segments at once distinguish the Cyprians from their Syrian neighbors. The crescent at the base of the thorax is brighter in Cyprians than in any other yellow race. The bees themselves are more slender than the Italians and, as a matter of course, are more lively. They rise early and come home late and are ever ready to defend their hives, a characteristic of all Orientals.

The races of bees living in western countries are never troubled to such an extent as the Orientals with all kinds of pests, amongst which the most prominent are the innumerable hornets (**vespa crabro**), which assail them from July to October and oblige them to be ever on the lookout against attacking enemies. They propolize their hives exceedingly, at the entrance, in order to defend themselves against intruders. The drones of the Cyprians have big orange segments, especially on the under side of the abdomen, with dark brown spots on the top, giving them a very pleasant look, reminding one of the panther-like shabrack or saddle-blanket used by eastern warriors. Very likely the yellow bees originated in Cyprus and were known to the inhabitants long before they were known on the continent or in Syria. Herodotus reports that the inhabitants of Amathontis cut the head off Onesilius and suspended it before one of their gates. When the skull was empty, a swarm of bees took possession of this queer hive and filled it with comb and honey. The inhabitants consulted the oracle on what to do; the answer was: "Bury the skull and offer a yearly sacrifice to the hero."

The Philistines who came from Cyprus and the isles and taught their arts in southern Palestine, also imported bees and kept beekeeping as a secret branch of agriculture, long before the Hebrews knew anything of the existence of bees and honey.

The Cyprians are as prolific and good honey gatherers as their sisters of Lebanon and Jordan districts, though Occidental writers have tried to decry them and favor the Italians for many reasons, the first of which is easier access to Italy than to the Orient.

A well-known authority on Cyprians, Frank Benton, once said to me: "Why, even Cyprians cannot get honey from the bare rocks in Cyprus," because of the scarcity of honey-plants.

The home of the Syrian bees is limited on the north by Asia Minor, on the east by the great Syrian Desert, into which no bees penetrate, and of course the Mediterranean stops them short on the west, and the Lebanon range running down towards Phenicia limits them on the south and sep-

Fig. 1. Country home in Jaffa in 1890, with hives on the wall

arates them virtually from their Holy Land sisters.

The bright golden crescent of the Cyprians becomes darker, though still visible, and the orange color of the insect changes into pale citron; the workers are a trifle smaller. No change as to liveliness of character worth mentioning. The Syrian drones are bright-colored, with brown spots.

Syrian workers fly out early and come home late, and if given the occasion, can gather as much honey as Cyprians or Holy Lands. Beyrout, where I had an apiary for several seasons, is not much of a bee pasturage, as the houses and villas are usually surrounded by mulberry trees, for the silk worms, excluding honey-plants, except the cactus hedges (**Opuntia**) which blossom in May.

The queens are as prolific as Holy Land queens, moreover, they lay just a few hundred drones less than their Holy Land sisters and, but for a slight difference in color, do not, as a rule, vary. The best stock can be had between Tripoli, Syria, and Beyrout, along the narrow strip of plain or undulated low lands between the abrupt chains of Lebanon and the sea.

I am inclined to think that Syrians are not so excitable as their northern neighbors, because bee pests abound much more in the south, where nature has bestowed more resources to the breeding of the hornets and wasps, by way of fruit trees, and to the multiplication of the stellion, a thorny lizard, sometimes fattening on bees. The stellion is a known feature of the Orient, dark grey in color. He is met with all over the grey rocks in this land of greyness. Living on small insects, he may be quite blessing where grasshoppers and flies of all kinds abound, but what a nuisance to apiaries! He has the advantage of having a gelatinous substance around his formidable jaws, in which the bees leave their stings before being swallowed. A captured stellion one day showed us over a dozen bee-stings on his gums and did not seem at all troubled by the poison.

We had an apiary out in the plains of Philistia, near Ekron, famous for the "god of flies" (Baal-Zebub) in ancient times. Stellions were so numerous that we had to dig trenches around the hives to protect them, yet in our absence the trenches were forded and the bees decimated. We carried them to a neighboring house for protection and put wire cloth on the windows, but hornets also assailed the bees. The isolated house was between Gaza and Jaffa, and in our absence an earthquake buried bees, furniture and house in the rubbish, so hornets and stellions could no longer linger about for them, and, as in olden days, "the land had rest for many months."

Holy Land workers are slightly smaller than Syrians, and fuzz also is more abundant, and decidedly grey in color. Holy Land queens are hardly to be distinguished from Syrians; some mothers are very small, others larger than Syrians; in color, too, as a rule, they are slightly lighter colored. The Holy Land bees are now found all over Palestine and the inhabited parts of the Trans-Jordan country; in the north, to the sources of the Jordan; in the south to Gaza, where the Sinaitic Desert cuts them short; in the west to the Mediterranean, and to the east the Syrian and North Arabian deserts oppose their sands to the continuation of bee culture.

Beekeeping still flourishes in the plains with greater success than in the sterile mountains of Judah. Big apiaries, containing hundreds of clay cylinder hives are met with in most villages of the plains, whilst the traditional apiaries about Jerusalem and Bethlehem, seen by occasional travelers, are rather apologies of apiaries to compare with the lowland stock. Bee pasturage is very abundant along the Maritime plains, from February to July or August. Through the long rainless summers, which greatly hinder the secretion of nectar in orange blossoms, cactus, thyme and lavender, moisture from the dews, which fall heavily in western Palestine, revives the nectaries.

Holy Land queens, as already stated, differ very slightly from the others, though occasionally a beautiful colored orange insect is met with. As a rule, when left to their instincts, they rear about one-fourth of drones. As soon as the colony has reached its full development they are as prolific as the other yellow bees, and more especially, a full colony will raise hundreds of good queen-cells; this is a specialty of Holy Lands. A noted beekeeper visited me one day in Jaffa, when I was in bed with the fever. I jumped up when he told me his name—P. C. Schachinger, of the Bienenzeitung, in Budapest. I showed him a hive bearing his name, and as we hunted the colony for the mother we counted 385 queen-cells, yet the stock did not swarm. To explain, they would have swarmed if I had left them alone for any length of time, but I usually made artificial swarms when the colonies had over twenty frames of brood. Sometimes I waited until they had twenty-four, but that only happened in April, during the orange honey flow.

The greyish yellow workers are as lively as their yellow sisters, perhaps a little more so, because of the huge hornets which nestle in the sandy plains around fruit-growing localities. When the hornets can find neither bees nor fruit, they feed on carrion, which, in the olden days, was found along the roadsides leading to towns and villages. The bees in the skull of Onesilius reported by Herodotus, the hornets feeding on carrion and cleaning the skeleton in a few days, the foxes and jackals helping them in their work; the ignorance of beekeeping in biblical days, witness the story of Samson and his swarm in a skeleton, point to the confusion of bees with hornets found in scripture. The honeybee was brought to Palestine either from Egypt or Assyria, or from both, for as late as King Ahaz, of Judah, more than four centuries after the Samsonian epoch, Isaiah says: "And it shall come to pass in that day, that the Lord shall hiss for the fly that is in the uttermost parts of the rivers of Egypt, and for the bee, that is in the land of Assyria, and they shall come and shall rest all of them in the desolate valleys, in the holes of the rocks and upon all thorns, and upon all bushes." (Isaiah vii, 18-19.) The Hebrews only knew Deborah, the bee or hornet, whilst the Arabs call bees Nahel, and the hornets Dabour. Now the word "Nahel" derived from the verb "nah," to sigh, to mourn, is of Egyptian importation. In the hieroglyphics, the bee is represented as the sigher, the mourner for the departed, on account of the sighing sound which is heard at the hive entrance.

The bees have thus taken the road

Camel carrying 600 pounds of honey

from Cyprus to Egypt, and from Egypt to Palestine, modifying colors and habits in the course of many centuries, till they arrived at the modern stage of fixity, a Palestine greyness.

When we left our country house in Jaffa in charge of the Moroccan guardian (see the photo, where he is armed as for war, with my wife holding the baby on the porch and the children around the solar wax extractor and hives) we sent down to Jaffa our extracted honey, filled into oil cans, boxed and carried by camel back, to be ready for shipment to Europe. Single colonies often gave over a hundred pounds of orange blossom honey, in April. As soon as the blossoming was over, the hives were strapped by fours, and two such packets were placed on a camel to carry them towards the plains of Sharon and Philistia, for an outing of four or five months. As we worked largely for extracted honey, the combs were emptied two or three times in April, once or twice in May and June, out in the plains, and once more in the mountains, in July.

This manipulating stopped the swarming fever, and as long as we were busy about them, we rarely had any swarms, though brood often filled three-fourths of the hive. We then, and still use, our pastoral hive, containing thirteen frames in each story. The frame measures 10x11½ inches. We adopted the small frame on account of the handy size (a full comb weighs about 4½ pounds of honey) to load the camels. A full hive of two stories weighing about 80 pounds, with comb, bees and a very little honey, to reach the next pasture, is also about all that a man can lift alone.

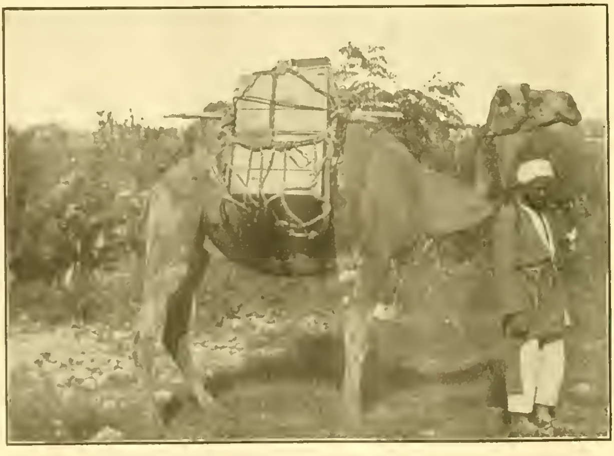
In Palestine, the bees winter well, especially in the heights of Judea, where winters begin in December and end in March. On the Maritime plains they have very short winters, and no real cold to speak of. We would have very cold days from Christmas to the middle of January, relatively, as the thermometer hardly once came as low as 31 degrees Fahrenheit. At the end of January and beginning of February almond trees begin to bloom and bees find food already, though not sufficiently to live upon if they did not have their 10 pounds of stores. Certainly a Jaffa colony, taken without preparation from Jaffa to Paris or London, would winter very poorly, whilst a Jerusalem colony would stand the winter better. I have had bees high up in the Alps, which came direct from Jaffa the previous summer, and which wintered fairly, and especially in the second generation, crossed with blacks.

As for propolizing, possibly it is a question of occasion; the orange trees have no propolis, nor have the honey-plants in the plains; whilst propolis is more plentiful where olive trees abound. We, at all events, had never to complain of propolis; on the contrary, we would have wished for more to hold the frames better in place when shaken on camel-back. As we always worked for extracted honey, propolizing never affected us. It is true that had we tried to work for sections, it would have proved a failure. Orientals don't build out the combs easily in sections, and they seal the honey at once, which gives the comb a greyish or watery appearance, not very attractive for the admirer of white section combs.

Tunisian bees I have found to be the worst propolizers. These bees build deeper sections, but have the habit of smearing the corners with propolis.

Egyptian bees are the smallest and the darkest of the yellow races. I have not tried to cross Egyptians, but all others have readily mated with Carniolans, Tunisians, Algerians, Caucasians, Italians or common blacks, such as we have in Nice.

I have talked with the owner of a big apiary near the Pyramids. There were nearly four hundred hives in one yard. The Nile hives, made of mud and dried in the sun, were arranged very much in the manner of the Caucasian apiary which embellishes the cover of the December, 1918, number of the American Bee Journal. As the stellion, already mentioned, lives in Egypt and would work much havoc among the bees, the hives in Egypt, as well as in Palestine, are all plastered together with the same stuff, and thus prevent the stellio-lizards from hiding below or above the hives, as they could do in the Caucasian apiary indicated.



Camel loaded with eight hives enroute for the pasture

The Egyptian beemaster showed me his hives, opened a few at the back, without even using smoke, and we walked up and down for more than two hours without receiving a single sting. A good Bingham smoker, which always accompanies me, subdues any race; provided the beekeeper knows what he is about and never troubles his bees uselessly or opens their hives without advertisement, the Egyptians will prove no crosser than others.

Fertile workers have been said to develop in abundance with all Orientals. We reared, yearly, several hundred artificial swarms and we were rarely troubled by fertile workers. Surely, if mothers fail to be mated for some considerable length of time, fertile workers will show up. Owing to hornets and the spirit of self-preservation, young queens would often hesitate to fly out to mate, and time and again I have almost lost patience with them, as often they would mate between the twentieth and thirtieth day, without a single fertile worker developing nor a failure in the laying capacities of the queen in after life.

The Egyptian bee is limited by deserts on all sides, the Sinaitic desert to the east, the Libyan desert to the west. Tripoli, beyond the desert, has the black bees of North Africa.

I never met any kind of foulbrood in the East during my stay as beekeeper, from 1880 to 1891; though I handled thousands of hives, bought in the native clay cylinder hives of the plains of Sharon and Philistia, and the mountains of Lebanon and Judea. Transferring them from clay hives to movable-frame hives, every brood-comb was minutely examined, yet I never saw a touch of the brood pest. It was not until 1894 and 1895 that I first saw the worst kind, bacillus larvæ, or American foulbrood, as you call it. I call it "gluant," on account of its gluey odor and sticky, long-drawn characteristics. I call the other kind "puant," or European foulbrood, as the Yanks call it, on account of the pestilential odor. I had very much to battle against both kinds, and find the difference very great between one and the other; the gluey sticks closer to you than a brother and it is almost impossible to get rid of, if you keep the hives and comb; whilst the pestilential is a friend, to compare with it, as it can be easily mastered by the intelligent beekeeper.

In the course of time foulbrood found its way to Palestine, too, after I left. I could not make out how it was introduced, probably by some ignorant beekeeper introducing foreign blood with infected comb.

Nice, France.

### Death of Frank Benton

THE name of Frank Benton may not awaken any recollections in the minds of beekeepers who have been less than 20 years in the business. Mr. Benton, however, was one of the most active beekeepers of the last 25 years of the Nineteenth Century.

From 1880 to 1885 he traveled, first with D. A. Jones, of Canada, afterwards alone with his wife, in Cyprus, in Syria, in India, in Ceylon, Java, Bavaria and Carniola, investigating the different races of bees and shipping them to America.

Later, as assistant entomologist, in the U. S. Department of Agriculture, he published a number of bulletins on bees, among the number a book of 118 pages, entitled "The Honey Bee," (1899). He was sent for a trip around the world by the same department, to search for the different races of bees. But for some unknown reason he never made a report. Altogether, he spent 12 years abroad.

Mr. Benton was a very capable beekeeper and of very extensive knowledge. He was born July 5, 1852, in Coldwater, Mich. His education was obtained in the public school of that city and in the Michigan Agricultural College. He taught for a few years in rural schools and in the University of East Tennessee, but soon abandoned this work for beekeeping.

He wrote many articles on bees for different publications and was the inventor of the mailing cage known as the "Benton cage." He was a linguist, speaking fluently several languages.

Searching for the big bees of India, Apis Dorsata, he contracted jungle fever, which was the beginning of years of ill-health for him and caused his retirement from active labor, but not from continued interest in apiculture. He sought some betterment of his condition in the warm climate of Florida. Death occurred at Fort Myers, February 28. There are left to mourn his loss one daughter, Mrs. C. C. Ford, of LaGrange, Ill., and her three little daughters; one son, Ralph Benton, of Los Angeles, Calif., and three sisters, Mrs. Charles N. Legg, of Coldwater, Mich., Miss Eliza Benton, Barre, Vt., and Mrs. George W. Martin, of Laporte, Texas.

### Co-operation in Experiments

IT has often occurred to me that the editor of a bee journal, like the editor of a chess magazine, avails himself of the activities of his subscribers in making tests and experiments for the good of the cause. For instance, certain chess players will be furnished with certain "tasks," as these are termed; that is, they will be asked to construct, say a chess problem, in which a checkmate is brought about by certain specified pieces in a specified number of moves and by means of a certain specified procedure; in this way, the chess playing public secures the result of the combined effort of the best analysis. Similarily, in your department, why not assign to certain beekeepers certain tests and experiments which they will be required to work out and report upon; the greater number applying themselves to one problem, the greater would be the certainty of the ultimate analysis. Of course, the only reward would be the usual one of the scientist, but the greatest of all rewards, a sense of having further unravelled the mysteries of nature.

For myself I have the following task, having regard to what Dr. C. C. Miller says on page 183 of his "Fifty Years," namely:—a comparative test to ascertain whether a new queen every season will result in greater productivity as against queens of two or more years' standing. This experiment, in order to be reasonably sure of hitting the mark, will take several years, and, in the interim, I shall have plenty of time for other tasks, and, in order to start my suggestion going, I shall be pleased to experiment upon any task which you, in your investigations, may think desirable of having data upon. I propose making an observation hive, and have written "Gleanings" for instructions as to the construction of the Miller observation hive.

C. F. DAVIE.

Victoria, B. C.

(Let us have suggestions as to what lines of experiment can be followed by a number of beekeepers at the same time with profit.)—Ed.

## BEEKEEPERS BY THE WAY

### A Gentleman From Texas

THERE are two things that E. G. LeStourgeon, of San Antonio, never overlooks—an opportunity to boost, first our beloved pursuit of beekeeping, and second, his native State of Texas. If you don't like Texas, never be guilty of betraying the fact to LeStourgeon. He is prepared to prove beyond a shadow of a doubt that it is the biggest and the best State in the Union; that it has more sunshine and greater opportunities and finer climate than any other place in the world. Likewise, he knows full well that beekeepers are the finest class of people, and that beekeeping is the most fascinating pursuit ever developed.

A Texas Booster

When Roosevelt was organizing his famous Rough Riders, LeStourgeon was a frail youngster who stood little chance of getting into the army. However, he could ride, and when an outlaw pony threw some of the ambitious boys who were anxious to go with the outfit, LeStourgeon volunteered to ride the pony, and did so. This attracted Roosevelt's admiration and he invited our friend to join his organization. The surgeons, however, decided that he was a better subject for a hospital than for the army, and told him so. What Roosevelt said to the surgeons is not recorded, but it is said that they quickly changed their minds as to the fitness of the new applicant, and he went to Cuba with the Rough Riders. On his return, at the close of the Spanish-American war, he toured the State of New York with Roosevelt during his famous campaign for Governor. The friendship that started when the outlaw pony brought the desired opportunity to get into the service, lasted till the death of the famous President.

Later LeStourgeon became a traveling salesman and toured the northern States. When in St. Louis or Cedar Rapids, LeStourgeon heard of the fame of Texas honey, he decided that he was overlooking something, so threw up his job and went home to go into beekeeping. Mindful of the usual expert advice to begin beekeeping in a small way, he bought 800 colonies to start with. In the February, 1916, issue of this journal is the story of the way he sold his first car of honey.

Most everybody in Texas knows LeStourgeon as a booster for beekeeping. Those who are better acquainted with him know that he is worth cultivating for a variety of reasons. He can tell you a lot of Texas history and can entertain his friends by the hour with tales of the old missions and the pioneers of the southwest. Every beekeeper who finds himself in San Antonio should be sure to visit the headquarters of the Texas Honey Producers' Association and get acquainted with the manager.

## Dixie Beekeeping

By Kennith Hawkins

IN my four years of work in the extension office of the U. S. Department of Agriculture, I have probably been asked more than any other, the question: "Where can I settle in a good bee location in Dixie?" My advice to the northerner going to Dixie is not to keep bees until he has been South one season and knows something of the location he is going to take up. Otherwise he may be disappointed. There are hundreds of good locations in the South for beekeeping, some of which I should like to take up myself. I speak particularly of Louisiana, Florida, Virginia, West Virginia and Kentucky. Those who wish to locate in any one of these States should communicate with the extension division of the several State colleges of agriculture. Information can be gotten there, far more accurate than mine, on definite locations. I spent too much time on the Pullman to know much about particular localities.

A Mississippi river bottom gum location in Arkansas

I want to emphasize that in a great portion of the South there is a real wintering problem. In the regions of the Virginias, Maryland, Kentucky, Tennessee, Arkansas and Oklahoma some winter protection is needed. Just how much I do not venture to say. I believe rather heavy packing would pay, in the northern part of the States mentioned. In the other States, certainly better winter protection than is given, is needed, in many cases.

The critical temperature at which bees begin to form a cluster and to generate heat by muscular activity and the consumption of honey, is 57 degrees. That was determined by Mr. George Demuth, working with Dr. Phillips, at the Washington bee culture laboratory. That fact will be accepted without dispute, I think.

Consider, then, that the weather bureau reports for an average year at Louisville, Ky., show that in a twelve-month period, there were but sixty-two days when at some time in the day the temperature did not fall to 57 degrees F., or below.

In the South, and, for that matter in the North, too, there are hundreds of locations where the beekeeper does not get the maximum yield of honey because of poor wintering. The fact that a colony of bees comes through the winter alive, is not at all a sign that the colony wintered well. This is a problem to be worked out. Experiment will give the answer.

Now, as to sources of honey in the Southern States. The South, as a whole, including all those States south of Maryland, West Virginia, Kentucky, Arkansas and Oklahoma, may be roughly divided into three great areas. The first and northernmost is a mountainous region extending from Maryland to Colorado. The second is a great alluvial region extending across the entire width of the same section, beginning in Southern North Carolina and extending across Central Georgia, Alabama, Mississippi, Southeast Arkansas and most of Texas. Below this is the third region, which extends in a way difficult to describe, mostly along the coast of all the States in this region and in some cases for many miles back.

In the first region, probably the three principal mountain sources of honey are basswood, tulip, poplar and sourwood for the region east of the Mississippi river. Also there are, in portions of West Virginia, Kentucky and Tennessee, great areas which must be included in the white clover belt, and which are very important sources of that honey. West of the Mississippi the sources of honey are rather indefinite so far as my knowledge goes, as in but few cases the same honey plants prevail, and in great portions of Arkansas and Oklahoma there are no localities where bees may be profitably kept.

In the alluvial region, extending across the territory east of the Mississippi river, probably one of the most prevalent honey plants is gallberry, which yields an amber honey, as do sourwood and tulip poplar when mixed with the other flora. In some portions of this section cotton is a source of honey, and field peas, soy beans and similar field plants form additional important sources. Special attention must be called to the great region in part of Georgia and most all of Central Alabama and Mississippi, where a great white sweet clover area exists from a natural growth. This is an extremely valuable and safe honey-producing region, which, however, is being undermined gradually by the introduction of cattle, and the sweet clover suffers as a forage crop.

In the region further south, which

Carload of bees enroute on the Chattahoochee river. Shipped by F. W. Sommerfield, ranges from the lowlands along most of the coast and far back in portions of the Carolinas, Georgia, Florida and Louisiana, and into all those States which border the Mississippi river, there is a typical swamp flora which is so varied that it is impossible to describe it in a short space. Gallberry is again an important source here, with black and white tupelo, saw and cabbage palmetto, citrus trees and thousands of vines, as well as a number of cultivated crops. Probably two of the best gallberry regions in the country are located in North Carolina and Southern Georgia, reaching down into Northern Florida.

West of the Mississippi river, in Northern and Eastern Texas, is the best cotton honey area in existence, on the deep, sandy, black loam soils. Horsemint is also an important source here, and in some portions of this territory sweet clover is also coming in, even as far up as Northern Oklahoma. Southern Texas, between the Mississippi and Galveston, appears to be a rather barren bee country. Western Texas, which is subject to periods of drought, has several valuable and important plants. Among them are huajilla, catclaw and trees of the acacia family. All are valuable for white honey and cover most of the desert portion of Texas.

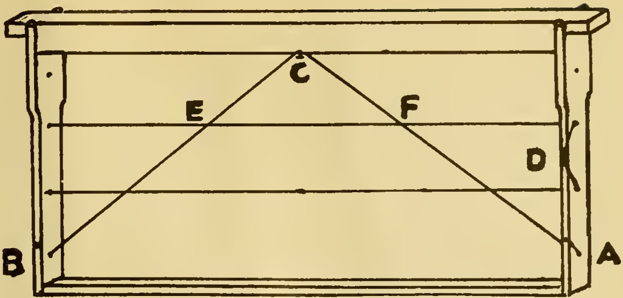
Beekeeping is fairly well advanced in most of this territory, except in a few regions where box-hives predominate. The territory is devoted to the shipment of pound packages of bees, where a long spring flow builds up the colonies so that many pounds of bees may be taken away from them before the main honey-flows begin.

Nearly all the honey of the South is a good quality and flavor, except in scattered regions where bitterweed is prevalent. Honey from this source is unpalatable, but bees will not work it when any other good honey-plant is in bloom. Its season is definite enough so that good beekeepers may extract in time to prevent mixing and may use the bitter honey to feed back to the bees in the fall for wintering purposes.

Watertown, Wis.

## A Scheme to Prevent Sagging Combs

IT is to be hoped that the future will bring forth some process of manufacturing foundation that will obviate the necessity of wiring. In the meantime, I would suggest a mode of wiring frames that will, in a measure at least, prevent the sagging of foundation which commonly stretches the cells for an inch or more below the top-bar. The plan is best shown by reference to picture. Half-inch nails are driven part way in at points A, B, C and D. The wire is passed through the perforations at A and B. The frame is then inverted and the wire given one turn about the nail, C, which is on the under side of the top-bar, as near as possible to the groove made to receive the foundation. The wire is then drawn to moderate tension and fastened to A. Next, with a pair of pliers, the kind commonly used about automobiles, the nail, C, is pressed in, drawing the diagonal wires taut. The horizontal wires are next inserted in the usual way. It is best to drive the nails, A, B and D, on the same side of the frame as is the wedge or corner piece. The nail, C, is, of course, on the side opposite, close to the groove.



Miller's method of wiring frames

In inserting full sheets of foundation it is found best to slip them in between with the diagonal wires on one side and the horizontal wires on the other. For imbedding we use a small transformer attached to an ordinary electric light socket, reducing the pressure to about six volts.

It will be observed that the wax which tends to hold the wires together at points E and F prevents sagging, which is almost sure to occur with ordinary horizontal wiring, if the weather is hot and there is any considerable weight of bees. The time required to wire frames in this way, after one acquires the knack, is about the same as for horizontol wiring.

It would be of interest to have reports from any others who may have actually tried out the diagonal wiring in connection with the horizontal here shown.

E. S. MILLER,
Valparaiso, Ind.

## A Boy's Beginning With Bees

By Elmer Okerlundt

Editor's Note.—The following account of a boy's first beekeeping experience should be of interest to every beginner. It shows that a fellow with a good book and good sense can soon master the essentials. It is surprising that such good practice should have been followed from the first with the little help except the book:

IN the winter of 1917 (when I was 17 years old) I decided to buy a swarm of bees and experiment. As for me, I knew no more about bees than the man in the moon. I had never seen the inside of a beehive and did not know the names of any fixtures. Therefore, my first move was to find a catalog and study bee supplies. As soon as I got so I could tell comb-foundation from a super I went to see one of the neighbors. At that time he owned about 15 colonies in 10-frame hives, part of which were Italians. He ran them for extracted honey. Upon hearing that I was interested in bees he gave me about 25 copies of the American Bee Journal and Dr. Miller's book to take home and read. The more I read, the more interested I got, and before I knew it I had the fever real bad.

On April 15 I decided to commence. A neighbor agreed to sell me a swarm, so I drove over and got it. I got them home all right, but when I uncovered the entrance my courage began to fall. Soon I got nerve enough to remove the cover and looked into a hive of bees for the first time in my life. And a hive it was, indeed. The frames had not been out since they were put in and were perhaps 10 or 15 years old. I was unable to remove any, so I put the cover on again to wait until some other day. My first step was to make a good stand for them.

Although I had been told not to bother my bees until dandelion bloom, I could not resist the temptation, so one Sunday in April, when it was almost cold enough to freeze ice on hot water, I decided to interfere. With the aid of a screw-driver and wrecking bar I succeeded in removing the frames, although I broke several of them. The combs, like the bees, were black as coal, and so crooked that when I transferred them I could not find room for more than 7, so I threw one away. I looked in vain, but saw nothing that resembled a queen, and although I got a few stings, I was well pleased with my first adventure with bees. I knew I could handle them on a cold day, at least. After a while I put a hive-body with full sheets of foundation under the other one and as the weather was good they made wonderful progress.

The colony built up strong for winter, but we had a very poor season. In spite of these conditions, I managed to smuggle away with 75 pounds of extracted honey. I considered this pretty good for a beginner, but the lessons I learned that one summer were worth more to me than all the honey I have ever produced. In the fall I thought they felt rather light, so to be on the safe side I fed them about 5 pounds of granulated sugar.

On November 17 they had their last flight, and on the 25th I brought them into the cellar. Our cellar, in my opinion, is not a very comfortable place for bees or anything in general. The most objectionable thing about it is its dampness. The temperature varied from 35 to 50 degrees. I can only add that although the combs were a little mouldy when I removed them, 109 days later, those bees wintered well and were in excellent condition the following spring.

I got the fever worse than ever and began to figure on beekeeping on a larger scale, or as much as my capital would permit. During the winter of 1918 I made plans to purchase a few more swarms in the spring. My father was handy with carpenter work and he agreed to make hives, bottom-boards, covers and frames if I furnished the lumber. Accordingly I purchased some 10-inch white pine boards. I wanted to be strictly up-to-date, so the 10-frame hives, metal spaced frames, double telescoping covers and Dr. Miller's 2-inch deep bottom-boards were made. This has always been my equipment, and I think it will continue to be until I discover something better. After purchasing some queen-excluders of the wood and 7-wire type, and some brood foundation, I had equipment enough for five or six swarms. I wired my frames and put in full sheets of foundation.

In the spring I purchased four more swarms of black bees from a neighbor, paying $3 apiece for them. They resembled the first swarm I purchased, very much, but perhaps not quite as bad. One nice day in the latter part of March I transferred them into my modern 10-frame hives, filling the vacant spaces with some combs I had on hand from the preceding year. I also found and clipped the queens at the same time. At first I found them by sifting the bees through a queen-excluder, but after a little practice I got so I could distinguish them readily while on the comb. These bees seemed to be of a gentle disposition, and I commenced to wonder what a person wanted with Italians. Of course, I found out why a person wanted Italians before the summer was over. On April 1 they commenced to work on the willows, which are the first honey-plants in this vicinity. About the 1st of May the dandelions make their appearance, while the willows generally continue to blossom until the 15th.

Like all beginners, I had drawbacks, and the worst one was my lack of combs. My best substitute was full sheets of foundation. Along about the first of May most of the colonies commenced to need more room. All those that were strong enough to need it I gave another story of frames with full sheets of foundation. For several reasons, I always put this second story below the other one. As the nights were still very cold, occasionally, I felt safer by adding them below, as it enabled the bees to keep up their normal temperature. An empty super is a bad thing to place over a colony in early spring. Besides, I wanted to induce them to do as much brood-rearing as possible, and I noticed they worked down easier than they worked up. The main reason, however, for my putting them below was to be able to put queen-excluders on after a while, allowing the brood to hatch from those old combs in the top story, so that I might extract from them as soon as possible and get rid of them. When the colonies were strong enough to need it, a third story was added. As the bees always showed a tendency to store their honey above their brood, this story was given on top.

During the first days in June the white and alsike clover began to appear. All the colonies were three stories high now, and things commenced to look pretty lively. I had been going through them once a week, regularly, up to this time, looking for signs of swarming, queen-cells, etc. While going through them on the 9th day of June I saw all the queen-cells one could ever wish to see. I had been looking for a chance to try some experiments, and here it was. I found the queen and put her with a frame of brood into an empty story below. On this I placed a queen-excluder and put the other three stories of brood and honey on top of it. Ten days later I removed all the cells in the upper stories. The foundation in the lower story where the queen was, proved to be all drawn out and fairly well filled with brood and eggs. On going through the colonies a week later I discovered that two of the colonies were starting cells again. With these I went through with the same performance again, but instead of giving the queen one frame of brood below I gave her three or four, as I did not like to remove more brood than necessary to discourage swarming. This I thought had settled the swarming fever for the season and I was almost correct in so thinking. I did not see a swarm until the last part of August, when I found a small swarm hanging out about 4 o'clock in the afternooon. Upon investigating I found one of the colonies had superseded their queen and when the virgin hatched they swarmed.

And now we come to some figures. This is the best part of beekeeping. My best colony produced 125 pounds of extracted honey. My next best colony produced 89 pounds and the others 80, 65 and 59 pounds, respectively. This makes a total of 418 pounds, or an average of 83 pounds per colony. This honey was all sold at home, the purchaser furnishing his own container; 300 pounds of it was sold for 15 cents per pound, 100 pounds for 18 cents per pound, and the remainder for 20 cents per pound. As there were no expenses paid for containers, the net amount I received for the honey was $66.60, an average of a little better than $13 per swarm.

Browerville, Minn.

An Iowa white clover field. H. E. Roth, of Strawberry Point

## Why Did These Bees Die?

I had a peculiar experience with one colony the past season which I concluded to tell you about. It came through last winter in good condition. Last spring, when dandelion was in bloom I put on a super of 24 sections. The 20th of May this was filled with honey, so I took it off and put on another super, but before the bees were strong enough to enter the sections the first honeyflow was over. I looked at them several times, but there was nothing doing till the last of August, when I examined them and found a few bees in three or four sections and some of the foundation cleaned out in those sections. I concluded it was so late they would not do much more, so I did not examine them again till a warm day in January, when I noticed no bees flying. I took off the cover and found the sections all filled and sealed with a nice quality of honey. I took off the super and examined the brood-chamber and found the two outside combs filled with sealed honey. The other six combs had honey at the top and ends of the frames and the centers all filled with brood. There was quite a few empty cells amongst the brood, but the cells were all clean, no ununsealed dead larvæ. There was only a handful of dead bees on the bottom of the hive, and only a few straggling dead bees on the combs.

Did those bees die of foulbrood, or did they swarm out late in the fall? There were no dead bees in front of the hive, and I could not find the queen among the few bees that were there.

Please excuse this long story, but I would like to know what the trouble was with those bees, as they must have been good and strong while filling the sections.

S. L. SHERMAN,
Oskaloosa, Iowa.

In reply to your letter and the experience which you had with the colony, the only possibility which I can think of is that your colony might possibly have swarmed late in the fall and then did not get requeened, and so died from queenlessness. From the fact that you found some sealed cells of brood, and these were scattered, I believe these might have been the brood of laying workers.

It is hardly possible that your colony died from American foulbrood, for the simple reason that if they had been badly diseased, they would not have stored honey in sections. I certainly cannot think of any other explanation for your query, and I am forwarding your question to Dr. C. C. Miller, of Marengo, Ill., and his answer will appear in the American Bee Journal. F. ERIC MILLEN,
State Apiarist.

When I opened my mail this morning I read aloud the letter of Mr. Sherman, and as I finished reading it, my assistant, Miss Wilson, tersely remarked, "They swarmed." Then I read the copy of Prof. Millen's reply, and it covers the ground so fully that I have nothing more to do than to put my O. K. upon it. What a lucky State Iowa is in the men she has had and has, to lead in beekeeping. And withal this man Millen is such a lovable sort of chap.

C. C. MILLER.

## Transferring

I am buying some bees from a farmer. They are in movable-frame hives, but he did not use any comb foundation and the combs are crooked. Now what can I do with these combs? Would you advise removing them and putting in comb foundation? Or can I straighten those that are crooked and splice them out? At what time would you advise me to do this work?

A. A. B., Kingsley, Ia.

Answer. The question which you ask is a very common one, as many people do not see the absolute necessity of securing straight combs in the frames. It is only when they see others handle the bees, helping one colony from another with combs of brood or honey, as the occasion requires, or making divisions, or in fact, manipulating the frames as though they were so many toys, that they realize that the advantage of movable-frame hives is secured only when the combs are as straight in the frames as so many boards, so that there may be neither leakage nor damaged cells. Handling bees, when everything is straight, is fun; handling hives of crooked combs in the frames is worse than handling old gums, or skeps, or box hives.

To straighten the combs, you should drive the bees out of the brood-chamber, at the opening of fruit bloom, into another hive-body, without frames. The hive which contains the bees is then left on the stand of the colony and the hive of combs, minus the bees, is taken into a work room of some sort, where no robbers can annoy. The hive is inverted and the crooked combs are cut loose from the hive walls wherever they are fast. The outer body may then be lifted off. The combs are cut out of the frames and each one of those that contain worker-brood is fastened into a frame, with twine or wire. We much prefer the wires bent at each end a half inch, the bent ends of the wire being driven into the edges of the frames, either horizontally or perpendicularly. At the end of a week the wires may be removed, as the bees, by that time, will have fastened the combs into the frame.

In the olden days, before the use of comb foundation, it was customary to transfer into the frames every piece of worker comb. But drone-comb, of which there is always too much, should be rendered into wax and the empty frames remaining in the hive should be supplied with sheets of comb foundation.

When the combs have been fastened into the frames, the hive is placed on the old stand and the bees are shaken in front of it and they hasten to take possession. If everything is manipulated correctly, it takes less than an hour to transfer the combs, and the brood does not get chilled, especially if the transferring is done within a warm room.

Another and more simple way, but less profitable, is to put a hive full of comb foundation in frames over the top of the hive to be transferred and drive the bees into it, when the crop is on, separating the two stories with a queen excluder so the queen may not go back below. At the end of 3 weeks all the bees in the old hive will have hatched and it may be removed and the combs cut out at leisure.

These methods are given in greater detail at pages 49 to 53 of "First Lessons in Beekeeping" and at still greater length at pages 309 to 316 of the "Hive & Honey Bee, Revised."—C. P. D.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
**DR. C. C. MILLER, MARENGO, ILL.**
**He does NOT answer bee-keeping questions by mail.**

### Transferring

When and how is the best time and system of transferring bees from a common box-hive into a modern hive? D. M.

ANSWER.—Wait till the colony in the box-hive swarms. Hive the swarm in a modern hive, setting this on the old stand with the old hive as close to it as possible, both hives facing the same way the old hive previously faced. A week later move the old hive back of the new one, facing the opposite way. Two weeks later still (three weeks from the time the swarm issued), chop up the old hive, giving the bees to the other hive, and melting up the old combs.

### Feeding

1. Feeding, do you let it boil, or just come to a boil?

2. I want to feed for early brood-rearing. What is the best way?

3. Do you think it would be a good plan to put feed in a butter bowl and put it where they can get it, when the weather is warm enough?

4. Do you think that I can make beekeeping a success in the south central part of Pennsylvania?

5. Do you think if a man uses tobacco he can handle bees as gently as one who does not?

6. Do you know of any successful beekeeper that smokes a pipe?

PENNSYLVANIA.

ANSWERS.—1. There is no need to make the water or syrup any hotter than necessary to disolve the sugar. If you dissolve it in cold water it will be all right, only hot water hurries the work.

2. The best way is to give combs of sealed honey, if there is not abundance of feed in the hive. If you have no sealed combs, then feed enough syrup at one feed. If there is abundance of food in the hive you needn't fear about brood-rearing going on, and if you feed every day with the idea that you will increase brood-rearing you may do harm instead of good. There is, however, an exceptional place where there is a dearth of pasturage that the queen stops laying entirely. In such a place half a pound to a pound of sugar should be fed every day or every other day, dissolved in an equal quantity of water. But I don't know whether there are any localities of that kind in your State.

3. Yes; only look out that bees do not drown in it. If there are neighboring bees, they will likely share in it.

4. Yes, if you have the right stuff in you.

5. Yes, unless he uses it to such excess that his hand shakes involuntarily.

6. Yes

### Foulbrood

1. I have 50 hives of bees, 10 of which have American foulbrood. I know how to shake my bees for foulbrood, rear my own queens and manipulate my colonies in general. After such an outbreak, how many hives would you expect to have the disease next spring, after shaking these 10 this spring? This is my third year and I do not feel much encouraged after finding the American foulbrood. Do you think I would overcome this if I would stay with it?

I run for extracted honey and use the standard Langstroth hives.

2. Do you think it would be safe to shake bees into a hive that had American foulbrood, after removing the old combs and scraping the frames and hives of all the wax and propolis and using full sheets of foundation?

CALIFORNIA.

Answers. 1. Others have come out ahead on American foulbrood, why not you? Of course you can conquer it, although it may be in surrounding apiaries and you may have repeated outbreaks. Aside from the danger from surrounding apiaries, none of the ten treated this year should be diseased next year.

2. I should not hesitate to use hives that had contained American foulbrood, and perhaps the majority would agree with me, although some would prefer to scorch the insides of the hives by burning straw in them. As to the frames, it's such a job to clean them up fit to use again that I believe I would rather use new frames.

### Moths

Kindly give your opinion about the vitality of moth worms in the cocoons. A friend of mine had a colony of bees die last fall. He examined them the other day and found live worms in the cocoons. I did not think it possible but he had witnesses to prove it. We have had a few days of zero weather, and many days of cold. I have found it takes much more to kill the cocoons, but had supposed plenty of disulphide carbon would kill them. If freezing won't kill them, why do we always say combs are safe after freezing? It has always been my experience they were.
MISSOURI.

Answer.—Those worms must have been wrong in their upper story. Any right-minded larva of the bee-moth ought to know enough to succumb to freezing. Seriously, I should hesitate about giving up a rule for a single exception, and I think this is the first time I ever heard of live worms being in combs that had been frozen. In spite of the zero weather, is it not possible that in some way there was enough protection so that there was no freezing in the center of the hive? Yet there is a possibility that there may be rare exceptions to a rule heretofore considered without exceptions.

### Hive-Stands—Bottoms—Records, Etc.

1. On page 134 of "Fifty Years Among the Bees" I read of how you boil T-tins in lye water to clean them. Do you think it would be all right for wood separators and for supers, or would it be injurious to the nails?

2. Wouldn't it be good to make hive-stands as you describe them in your book, page 88, and nail a cleat about an inch square on top, in front and back, for the hives to rest on to prevent the hive-bottom from lying flat on so large a surface?

3. I am running for extracted honey. Will it be all right to let the queen go into the super all summer, or is it better to have a queen-excluder between all the time?

4. What do you think is a fair price per gallon to extract honey for my neighbors with a two-frame extractor?

5. Would it be unlawful for me to make Standard dovetail hives with excelsior covers?

6. Do you think a 2-inch deep bottom-board is too deep for outdoor wintering, or will it be all right?

7. Will it not be cool in the hive at night if I have an entrance at each story, as you describe it on page 185 in the book? And how about it when it rains, will I have to go and shove them in place so the water won't run in the hive?

8. Last September I sent for some Italian queens and I killed the old queen and put the cages in the hives on the frames, above the brood. Most of the bees did not gnaw off the pasteboard on the end of the cage. The pasteboard had holes in it, but the bees only filled them with bee glue. What do you think was the matter?

9. Would like to have you show the record of a colony as you have it in your record book, so I will know better how to keep a record of the bees.
ILLINOIS.

Answers.—1. It does no harm to supers or nails, but it makes plain separators of wood curl up badly unless you dry them under pressure.

2 It seems it should work well.

3. It is generally agreed that it is better to use the excluder.

4. I don't know that there is anything for a standard. At present prices for skilled labor it should be enough to pay you at least 50 cents an hour, and if you have many bees of your own to care for it may not pay you at that.

5. I think there is no patent to prevent.

6. It will be all right.

7. During the time that supers are on the hive the weather is so warm that no harm comes from these openings, but if a cool spell of several days should come it is easy to lay a little strip at the opening. I have never known any harm come from the rain, although, of course, it must enter at times.

8. That must be a very unusual occurrence, and it may be that there was not sufficient candy to reach near enough the holes in the pasteboard.

9. As you will see at page 38 in the book you have mentionel, an important thing in the record book is to keep track of the queen and the surplus from her or her antecedents. Early in the season the amount of brood is noted, as also the number of broods taken or given. Anything unusual may be entered, but the entries are comparatively few for the average colony. I've been looking through one of my record books to find something that would be a fair sample for you, but no two are alike, and they vary so greatly that no one of them would give you a very full idea. However, I'll give you one of them:

5-12 ,q cl 4 br; 5-29, br in 7; 6-30, 9 br; 7-9. Dem; 7-18, excl; 7-27, kc above.

Short as that is, it might need a good deal of explanation. It may be read thus: May 12 I found the queen was clipped, and there were 4 frames of brood. May 29 there was brood in 7 combs. June 30 there were 9 brood. July 9 I Demareed the colony, putting all but one brood in the fourth story. July 18 I put an excluder over the first story. (The queen had presumably gone up through the two stories of extracting-combs into the fourth story and I put her down and kept her down with the excluder.) July 27 I killed cells in the upper story.

### Sections—20-Frame Hives

1. A few of my supers are for section. Is it necessary to have section holders to sit sections in or on, or can I set sections on the excluders?

2.Suppose a fine, large swarm of bees were put in a 20-frame hive and a 20-frame super on top; later on, as they need same, another 20-frame super added; would they swarm before it was all full?

3 When they did swarm, would it be large?

4. I wonder what beekeepers up north think of it being swarming time here in sunny Texas?

5. Why does Dr. Miller not advocate the use of paint on hives?

6. Is there anything at all in a honeysuckle bloom or in a cape jessamine bloom for bees? Both are very fragrant, yet I have never seen bees working on them. TEXAS.

Answers.—1. Bees will fill sections if they are merely set on an excluder, but you will not find it a satisfactory way. Better have some kind of a section-super; but you do not need an excluder if your sections are *filled* with worker foundation

2. Likely there would be no swarming.

3. If a swarm should issue, it would likely be large.

4. Northern beekeepers envy you your advantages, yet if all of them should head for Texas it would be rough on northern fruit men to have no bees to fertilize the fruit blossoms.

5. In my locality I think it costs less to get new hives occasionally than to keep the old ones painted, and I think unpainted hives are better for the bees in winter while in the cellar.

6. I think the honeybee cannot reach the nectar in these flowers.

### Transferring—Syrup for Bees—Roaches

1. I have 35 stands of bees; 15 are in old hives or square boxes that I recently purchased. Would it be advisable to transfer them middle of April? All have plenty of stores.

2. I have about 20 gallons of maple syrup that is a little old for table use; would you advise the feeding of this to bees after boiling and skimming? I have some in patent hives that need feeding.

3. Some of my hives have roaches in them; how do you get rid of them?
MARYLAND.

Answers.—1. You can transfer during fruit bloom; although it may be still better to wait till they swarm, put the swarm in the new hive on the old stand, the old hive close beside it, then a week later move the old hive to the opposite side of the old one, and two weeks later still break up the old hive and unite the bees with the swarm.

2. It may do to feed it, but look out not to get it in the surplus.

3. Don't allow any place where the roaches can be sheltered against the attacks of the bees. The use of quilts allows a nice, sheltered place for roaches and ants.

### The Blessed Bees

Some years ago I had a copy of a book entitled "The Blessed Bees," written (I think) by a Mr. Allen, who was located on a limetree belt in Ohio. It was the record of a few years' work of a successful beekeeper. The book was, unfortunately, lost, and I shall be glad if you can let me know where a copy can be obtained. Kindly let me know, also, your opinion of the book. IRELAND.

Answer.—I think the book is out of print, and I don't know where a copy could be had. It was a well-written piece of fiction, yet I think it contained nothing impossible.

### A Beginner

1. I have been studying beekeeping all my spare time for a year or so. I have read your "Thousand Answers to Beekeeping Questions" twice, and it will be as interesting to read it again. Do you think I will make a success at beekeeping?

2. I am buying 5 colonies of bees at $5.00 each. I would rather go in for extracted honey, but I have some comb honey sections and supers, etc., and will get some with bees; will use full sheets of foundation in sections. Can I fasten them sufficiently with the Parker fastener, and with V wax tube?

3. We are going to move south this fall, probably west Tennessee, Arkansas or southeastern Missouri. Is west Tennessee between the Tennessee river and Mississippi river any good for beekeeping, or is the ground too poor?

4. The only objection we have to this country is the long, cold winters and frosts in late spring and early fall. For bees to work on here we have, first willow-maple; flowers, clover, wild cherry, raspberries, blackberries, buckwheat, peas, goldenrod, etc. Would you consider this a good bee country?

5. Most farming beekeepers around here use only 1-inch starters in sections and in a good year they expect to get 50 pounds, or 95, maybe, sometimes 100. Should I get more? Of course they have had experience, and I have not.

6. I want my bees to make just as much honey as they possibly can, and yet get a good swarm from each hive. Had I better let them swarm naturally and then hive them, as you so often explain, putting swarm on old stand, old hive beside it, and moving in 7 or 8 days (old hive?)

7. Of course I run quite a risk of losing the swarm when I may be working in the field. If I do lose the swarm, then how can I keep them from swarming again?

8. If I had some experience I would swarm them artificially, or divide, or something. Which is best?

9. I am borrowing the money to buy the hives and supplies and want to be sure of getting a crop, if there is any to get.

10. Will the Novice or Cowan two-frame extractor 9⅝ in. wide take a regular Hoffman brood-frame?

11. When I go in for extracted honey had I better use 2-story or same size extracting frames as brood? MICHIGAN.

ANSWERS.—1. If you have twice read through that long string of questions and answers, and still have an appetite for another dose, you certainly show a strong taste for beekeeping and a lively interest therein, and that goes quite a ways toward making a good beekeeper, so I feel quite hopeful of your success.

2. Yes, they can be fastened either way.

3. I am not intimately acquainted with that region, but think you will find good locations there.

4. There seems no good reason why bees might not do well there. To be sure, your winters are severe, but not so much so as mine, and I've stood it for about 59 years.

5. Yes; not only will full sheets of foundation give more surplus than 1-inch starters, but I feel sure that you are, or will be, more up-to-date in other respects, and so will have greater success.

6. The plan you outline is very likely the best for you, at least for now; after you have had more experience you can tell better whether you ought to change to some other way.

7. But you don't need to lose the swarm. Of course you will clip your queens, and then if a swarm issues in your absence you may lose the queen, but not the swarm. At any rate you can kill all queen-cells but one, and then no swarm will issue.

8. Until you have more experience it will be a good plan to use both ways, and then you can better judge which way is better for you.

9. I don't know. A season may be very poor and give you no surplus whatever. It may be remarkably good, and give you 150 to 200 pounds of comb honey, or 50 per cent more of extracted.

10. Yes.

11. You can begin in that way, and any time later on you can change to shallower extracting frames if you think best.

(Northern Michigan is considered a better bee country than Tennessee. Many successful beekeepers in Northern Michigan average 100 pounds per colony year after year. For beekeeping, Michigan is hard to beat. Unless there are other reasons for leaving than to find a location for beekeeping, one had better investigate pretty carefully before making the change.—F. C. P.)

### Package Bees

How far can I have bees by the pound shipped satisfactorily? How ship? Which is the best parcel post or express?

SOUTH DAKOTA.

ANSWER.—In spite of the many pounds of bees that have been shipped, the shipping of packages is still somewhat in the experimental stage, and in some cases the highest success is not attained. It is, however, not all a matter of distance, and there may be success between two of the most distant points in the country, and, for anything I know, across the water. As yet express seems better than parcel post, and shipping with a frame of brood is safer than shipping the bare bees.

### Queen-Rearing

Referring to your plan for rearing queens—

1. Do you leave just the three frames (two of brood to the one with strips) and leave that empty space each side in the brood-chamber?

2. Could one put the brood taken out onto the top of the same hive, and if put by itself for the few days, will the old bees accept it again?

ONTARIO.

ANSWERS.—1. The combs are put in one side of the hive, a dummy beside them, and the rest of the hive left vacant.

2. Yes.

### Bee Paralysis

Last fall, in August I think, I noticed one hive expelling several dead and dying bees. Two or three weeks later the hive next to it became infected, then the third became infected. The first hive is now very weak and queenless the second weak and little brood, though several cells with eggs, while the third has brood in all stages, strong and working good, but lots of bees dying. The sick bees work, or are worked, to the entrance and carried out by remaining healthy bees. A few have distended abdomen, with natural color; others normal in size, but turn a glossy black; others normal in size and color, though with the former, lie or sit unable to fly, and tremble or quiver as if in great pain. What is the matter, and what is best for me to do?

OHIO.

ANSWER.—The trouble is bee paralysis. In the North it is generally not very serious, and like enough by the time this is in print the trouble will be all over. Many cures have been proposed, and perhaps as good as any is to give the bees wholesome food, if they have not already obtained it from the flowers.

### Traps—Mating

1. Does it do any harm to use queen and drone traps on the hives during swarming season?

2. When a colony swarms and you kill its queen and you hive them back in the old hive, can I leave the queen-trap on, to catch the queen of the second swarm?

3. Does the queen of the second swarm mate before or after swarming?

MICHIGAN.

ANSWERS.—1. It is better not to have a trap on the hive except when actually needed. It no doubt annoys the bees to be obliged to go through the perforations, and it certainly is a hindrance to the free entrance of fresh air.

2. You might trap the virgin queen, but I'm afraid you might get into trouble by it, and possibly cause the bees to kill her.

3. I don't know for sure; I think after or during swarming.

### Nectar From Dandelions

Do dandelions yield nectar in Michigan?

ANSWER.—Yes.

### Requeening

How would you proceed to requeen, and when is the proper time? Must the old queen be removed before putting in new one? I have mixed bees—some are Italian.

PENNSYLVANIA.

ANSWER.—As a rule I wouldn't requeen at all; and never unless I could requeen with a better queen. Other things being equal, I would buy a queen for requeening toward the last of the season, and introduce her according to the accompanying instructions, killing the old queen before introducing. Still, if I wanted to breed from her as soon as possible, I might get her earlier in the season. But generally it is not so easy to get queens very early, and they cost more.

### Entrance Depth—Swarm Control—Package Bees

1. If I use a bottom-board 1½ inches deep under ten-frame hives (bees run for extracted honey) will they trouble by building down? Is this entrance too deep?

2. What system of swarm control do you consider most reliable when running for extracted honey? I would be glad to adopt a system that would permit a reasonable increase and at the same time give a good crop of honey. Bees are taken from cellar here about May 1, and honey crop begins about July 1.

3. If 2-pound packages of bees are placed in hives containing two frames of foundation and one frame of honey, will the bees "stay put," or insist upon swarming out for lack of brood to hold them? I have little brood to give them at the start. If I shut off most of hive-space with division-boards for these bees, will it do to allow frames of foundation to remain in remainder of hive, to be included as needed, or shall I put the frames in as bees require them?

4. If I place package bees in hives (10-frame size), pack warm during May and, in addition to the comb of honey they have, feed an Alexander feeder full of warm syrup twice a week, will there be any trouble about their failing to draw combs and build up for the flow July 1?

MAINE.

ANSWERS.—1. They may be depended upon to build down in so deep a space, or in any space more than about three-fourths of an inch deep.

2. The Demaree plan, or some variation of it, might suit you. As soon as there is danger of swarming, put all but one brood in an upper story, leaving the queen below with the one broood, having an excluder between the two stories. At the same time destroy all queen-cells above, and again 7 or 8 days later.

3. They might stay all right without brood, but sometimes they will swarm out when hived. It would make matters safer to leave the queen caged for perhaps 2 days.

It will be all right to have the frames of foundation in the unoccupied part.

4 Likely; but they will do better with a heavy natural flow, in which case no feeding will be needed. This refers to packages of 2 pounds.

### Queen Cells

In your "Thousand Answers" I find on page 134 in regard to increase: "If you find queen-cells in an upper story, let it stand another 5 days and then set it on its new place, giving it a queen-cell from one of the others." Now I should like to know why to give them a queen-cell from another hive; why would not the one they have be good enough for them?

CALIFORNIA.

ANSWER. It will be good enough unless you can give one that is riper or of better stock.

### Judging Location—Wintering

1. What can one do to estimate the worth of any part of this country for honey production?

2. Every once in a while one reads about wintering a colony of bees on so many frames, less than ten, in a 10-frame hive. This is all right if the remaining combs are all full of honey. Over half of the time, with me, frames are but partially filled with honey; so that all the ten are thus required for the bees to get through with. What is the good of advice that cannot be followed?

3. I am just through first examination of my bees and amongst other things, have equalized stores. When such examinations are made, do you ever lacerate the cappings of combs? I have a 12-frame colony that is rich in bees, but was lacking in stores. I gave it 4 frames of honey, all on one side of hive; would you have placed it otherwise?

PENNSYLVANIA.

ANSWERS.—1. I'm afraid I wouldn't make the most successful prospector for honey locations. If, however, I were forced to it I would look around and see whether there was plenty of white clover, basswood and other sources of honey with which I was familiar. That would work all right if I didn't go far from home. But when I got where the chief honey-plants were all new to me, I'd have to inquire what they were, and in most countries depend on the aid of an interpreter. Then I should try to find out what success resident beekeepers had, taking into consideration the up-to-date plans , or the contrary. Indeed, I think I should make inquiries before doing any looking for myself. Even before anything else, I think I should try to find out whether it was a fair field for me to try to enter, or whether it was already fully occupied by those upon whom it would be wrong for me to intrude.

2. I've read your question several times, and I'm afraid I don't quite get its bearing. Anyway, any advice as to wintering on any certain number of combs, with no thought of the amount of stores in them, is, as you intimate, foolishness. I didn't suppose, however, that

such advice was common. But if I have not got at the spirit of your question, I'll be glad to try again.

I don't find it necessary to do any uncapping, the bees without it having all the brood they can cover. I don't suppose it would make much difference where you put those 4 frames of honey, so long as you did not separate frames of brood by them, for after bees are flying freely they will find honey in any part of the hive.

### Granulation of Honey

Why, in candying, is some honey coarser than others? I should like to know what honeys granulate with a fine grain and what with a coarse grain. ONTARIO.

*Answer*.—I really know very little about it, but it may be that exposure of my ignorance may bring out the information from someone who does know. I suspect that there is a difference in the honey itself, the honey from one plant having a finer grain than that from another. But it is likely a still greater difference is due to the conditions under which the honey candies. The temperature, the ripeness of the honey, and other items, may play a part. One thing I know is that if honey be stirred occasionally when candying it will have a finer grain than if allowed to stand perfectly still. Also, the stirring will hasten granulation.

### Mating Queens

If I find queen-cells in a hive when there are drones flying, and I move the hive away and put in its place another hive, with honey and one ripe queen-cell, and after the queen is mated on the old stand give them back the brood and young bees from the old hive, will I lose any honey? IOWA.

Answer.—I don't know. Much depends on what happens afterward. If, on the one hand, the young queen is successful in mating and laying, and the old hive stands close by so that all its force unites with the new hive when the old hive is taken away; and on the other hand, if the bees are left entirely alone to swarm all they like, then it may be that you will gain rather than lose by the proposed plan.

### Demaree Plan

What is the Demaree plan to prevent swarming?

Answer.—It is a plan devised years ago by G. W. Demaree, of Christiansburg, Ky. Put all frames of brood in an upper story over an excluder, leaving the queen below with frames of drawn comb or frames filled with foundation. At the time of doing this, kill all cells found in the upper story, and do the same a week or ten days later. As the brood emerges from the cells in the upper story the cells will be filled with honey, and the combs will become extracting combs, while the bees and queen in the lower story will be in the condition of a natural swarm, and will proceed accordingly.

The usual time for this performance is any time after queen-cells are started, and before the bees have swarmed. It may, however, take place at any time near swarming time, even if no cells are found; and it may take place after a swarm has issued and returned.

In some cases the bees have swarmed out when left without brood in the lower story, so now it is the custom to leave one brood below, preferably one with the least brood.

Instead of putting the brood in the second story, many prefer to put one or two stories of extracting-combs over the excluder, and the story of brood still higher.

# BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Captured Swarm

A few days ago we found a large swarm of bees on a tree in the woods. We undertook to catch them, and sawed the tree down. They settled again on one of the limbs. We waited until dark, then sawed off the limb and shook them into a box. We had no hive.

The bees do not work at all. I peeped into the box this morning and they are just piled up in a corner, fully a quart of them.

1. Do you suppose the queen was killed?

2. How can I tell if there is no queen?

3. A neighbor said to shut them in and they would make a queen. Will they?

4. Could I take a queen from another colony and put with them? If so, how would I go about getting her? FLORIDA.

Answers.—1. The queen may or may not have been killed. Bees are freaky creatures and sometimes sulk even when the queen is with them.

2. You can tell the queen is present by finding eggs in worker-cells. That's difficult in your case. If you find the bees building worker-comb, you may know they have a queen.

3. Your neighbor is mistaken. If there is no queen and no eggs or young brood there is no hope for them to raise a queen.

4. Yes, if you are satisfied they have no queen you can buy one from any of those who advertise in this journal to sell queens, and directions for introducing will accompany the queen.

### Helps for a Beginner

1. I am a new beginner at the work and would like to study it up so as to make a success of it some day. Can you tell me some good book or magazine to get?

2. I live in town, so do not have a very large place, but one part of the lot has trees and berry bushes, and I wondered whether there was anything that would grow there that would be better for honey than clover. We have used it for a chicken yard, so is nothing there now.

3. What are some of the best flowers for honey?

4. Last spring I had two swarms and each one swarmed twice, but I only got three of the swarms, and one of them left after I had it in the hive, so I have only four swarms now; but they look pretty good these bright days. When a swarm comes out how do you get them to alight without going away?

5. Why, do you suppose, did the one swarm leave after I had it in the hive?

6. What is a good kind of hive to use, and what is a good company to get bee supplies from?

7. Do you put the top boxes on right away in the spring?

8. Do you feed the bees, or how could they get enough to average 265 pounds to each hive?

ILLINOIS.

Answers.—1. You cannot go amiss to get the American Bee Journal, a copy of which is sent you, and in the list of bee-books you will no doubt find the suitable book. Gleanings in Bee Culture, Medina, Ohio, and the Domestic Beekeeper, Northstar, Mich., are also good journals. But don't think of getting a bee journal without a bee-book, and if you cannot have both, be sure to have the book.

2. Your bees will go a mile or two in all directions to forage, and it would take many lots like yours to support a single colony. So don't bother about trying to plant anything for them.

3. White clover is likely the most important honey-plant in your locality. There may also be basswood, raspberry, alsike and sweet clovers, fruit blossoms, dandelion, heartsease, and others.

4. Don't do anything. Some people make a racket by pounding on tin pans, but it doesn't do a particle of good. The bees will settle of their own accord, unless the wings of the queen are clipped, in which case they may settle, or they may return to the hive without settling.

5. Like enough the hive was close and perhaps standing in the sun, and the bees left because they didn't want to live in so hot a place.

6. The 10-frame dovetailed hive is perhaps most common, but some good beekeepers think it too small, and prefer the Dadant or other large hive.

7. No, supers for surplus are not put on in your locality till the first white clover blooms.

8. You are referring to Dr. Miller's record crop of 266 sections per colony, which would be only 244 pounds per colony, in which case there was no feeding; the bees got their supply from the surrounding fields.

### March Snow in New York

Yesterday, last night and today, up to this time (noon), it has been snowing, and the wind has been blowing the worst I ever knew it to be in March. As near as I can judge about 8 inches of snow, but it is bare ground or in heaps.

My bees, 3 apiaries, have all been carried out of cellars and had a good cleansing flight. Only one colony dead; don't know what effect these two days of snow and wind (the thermometer 16 above zero) will have on them. N. D. WEST.

New York.

# Beedom Boiled Down

## Saving Weak Colonies

IN looking through my bees this spring I found three colonies that had only about a handful each of bees, but the queens seemed to be good; and, as I wanted to save them if possible, I took queen-excluders and covered them with wire-cloth and bored a three-eighth-inch hole in the hives for entrances. I placed the weaklings over strong colonies with these screen-covered excluders between the two hive-bodies and gave them each a frame of hatching-brood. About a week later I took the wire-cloth off, and now they have three frames of brood each. As soon as the dandelions begin to bloom I will separate these hives. I think in this way I have saved the queens and at the same time have built up three good colonies of bees that will store me some surplus honey, as our main honey-flow starts about the 10th of June. The dandelion promises a good crop here to build the bees up on, and sweet clover and alfalfa are coming on in good shape, so everything points towards a good crop this season.

CURTIS WHARTON, Juntura, Ore.

## Increase

I HAVE a number of colonies of bees at my old home, about 100 miles from here. Having no source of honey and pollen here for the bees to build up on till about June 20, when there will be an abundance of alfalfa and sweet clover, I thought to leave them where they are now and let them build up on fruit blossoms and dandelion, and then bring them here in combless packages, leaving enough bees in the hives to take care of the brood and build up to a strong colony again.

I intend to bring them here on a truck or automobile and make the trip over night, if need be, on account of heat. What I want to know is whether I can put the bees of a whole colony in one box, or would it be better to have smaller packages? Please give me the best way to do it.

ALFRED DURTSCHI,
Myton, Utah.

Answer.—The method you propose would be practical, if it is your intention to make increase in preference to honey. The taking of the bees in an empty hive would be all right, if you arrange to give them air, say by placing a screen over the top in place of cover, for the trip. We would recommend hauling enough combs of brood to give each colony one on arrival, to prevent their deserting the hives, as the trip might cause them to wish to leave.

Some eastern beekeepers practice a similar plan by having apiaries in the South from which they remove the bees prior to the northern honey-flow, leaving the brood and sufficient bees to keep it warm on the old stand with which to build up the colony.

However, the transportation of your bees in full colonies at the date you mention should give you no difficulty, if you transport them after night and give them plenty of ventilation by placing an empty super over the hive and leave the top open with a screen for air.

## A Safe Feeder

I think I have developed a convenient, safe device for feeding bees, either out of doors, on thin syrup, or over the brood-nest.

Make a shallow box of wood or metal, any depth, and in it put a piece of galvanized window screen bent like the bellows of a photograph camera, into a series of V's, thus: VVVVVVV.

Using it I find it necessary to punch holes, large enough for the bees to pass through easily, in the top of the ridges. To do this quickly and easily bore a hole in a board, and with an iron point punch the holes, resting the wire over the hole in the board. With the holes in the wire, which should be about an inch and a half apart, the bees will not get under the wire and drown, but it will be as well to have the wire V's fill the box from side to side.

A strip of wire cloth as wide as the box will take about 18 inches for every foot of length, if the V's are 1½ inches deep and the same from apex to apex of the ridges. The wire may be bent simply by folding it on itself.

I have tried this out thoroughly this spring, and after putting the holes in as described above have lost not a bee by drowning.

DR. BONNEY.

## Goldens

YOU know what claims have been and are being made by some breeding Goldens. I want to be fair or nothing, and so far, with many tests up to 1917, not a single Golden queen has proven worth while for me. Have many good friends among breeders who object to my unbiased statement, and I promised to test once more and for all the respective merits of the 3-banded vs. Goldens.

Golden queens secured the past season produced bees that were golden all over, and a type that was new to me—up and doing every minute, very prolific, full of pep and energy, flying and working under adverse conditions, losing no chance to gather stores even if they had to steal them—and had concluded that at last some Goldens were up to representations. But wanted to see how they wintered, as it was the apparent lack of vitality in wintering and in early spring that heretofore proved their undoing, but the weather was against the thoroughness of the test. So far they have lost more numerously than the darker race, but are still active and may build up fine when real spring does come.

Have to acknowledge that this is no final test, but am from Missouri, and will have to be shown.

E. J. Ladd, Portland, Ore.

## Hawkins to Wisconsin

MANY of our readers will be interested in the announcement of the G. B. Lewis Company to the effect that Kenneth Hawkins has been placed in charge of their experimental apiaries and the information desk. He will answer the questions asked by their customers and endeavor to assist with such problems as are brought to him.

Mr. Hawkins was for some time engaged in queen rearing in Illinois and later spent some time in extension work for the U. S. Department of Agriculture. His extensive travel in extension work added to his practical experience as a honey producer and queen breeder should fit him well for his new position.

The G. B. Lewis Company is one of the largest bee supply manufacturing concerns in the world. The addition of an experimental and information department will enable them to make tests of new equipment in their own apiaries and to render much practical assistance to their customers.

## Honey From Corn

I SEE by the March Bee Journal that Mr. Roose, Mr. Van Ronzelen and Mr. Kaler claim to have gotten corn honey. I believe Mr. Ronzelen saw the bees gathering a sweet juice from the corn cob, as he says, and possibly Mr. Roose and Mr. Kaler are right in their belief that they secured corn honey, but I believe from my observations that they are mistaken. I have kept bees in Michigan about 45 years, and six years here in Minnesota, and there

has been scarcely a year that I have not watched to see if the bees ever gather honey from the corn tassel, and during all of my beekeeping I failed to see bees gathering honey from the tassel. I saw them one year sucking at the root of the leaf next to the stalk. Wm. CRAIG,
Aitkin, Minn.

## More About the Central Plant

A WISCONSIN beekeeper asks Morley Pettit, of Ontario, for further information regarding the central plant, as follows: (See Mr. Pettit's articles in the April and May, 1918, issues.)

"We are just starting some outyards. As we live in town, where we have the buildings, power, light, heat and gas, we expect to do all our extracting in one central plant. In one yard we have 100 colonies, and to extract eight tons of honey, as we did last season, it is a rather stiff job to do by hand. We must bring all the honey to town anyhow to pack and ship, but some say not to haul the combs on an auto truck for fear of breaking them. Our season lasts from April till the time frost kills the goldenrod. Any further information about the central plant will be appreciated."

Replying to your favor of recent date, do not know that I can add much to what has been published in the American Bee Journal under my name with reference to extracting equipment. From what I gather from your letter your conditions are more favorable for trucking supers home to extract than ours. We now have four hundred colonies with three outyards, 3½, 8½ and 10½ miles away. More will be established this season, and the beauty of it is we do not need to care whether the new locations have bee-tight houses or houses of any kind, for that matter. Our roads are only fairly good, and with lots of hills; yet for reasons which develop as the system does, in addition to the ones which are manifest, we would not think of decentralizing again.

Our frames are staple-spaced, but spread in supers. We have no trouble with breaking where the load is sufficient to cause the springs to function properly Sometimes we have to crowd combs together and put in the extra comb to prevent swinging. One point, all tob-bars are reinforced by driving a nail down from the top close to each end and clinching to prevent splitting off the lug. This has to be done before nailing up the frames. Even without this very little splitting occurs where the driver is reasonably careful. We have a Ford truck and find it very satisfactory for a load up to three thousand pounds. If we had not the steep hills we would use a trailer in addition.

Of course you will have to make up for small buildings by having enough space at home. Our building, put up in 1917, is 24x40 ft, with upper story and attic. It was built with the intention of tearing down the small barn which was on the place when we moved here. We can't spare the barn until we build at least as much more capacity, and then it will be arranged for extensions as needed. You see we count on super capacity for the whole crop, and when they all come home there has to be some place to put them, besides carpenter-shop, honey room, etc.
MORLEY PETTIT.

### How Many Trips to Fill a Cell

Page 61, February issue American Bee Journal: "How many trips are necessary for a bee to fill a cell with honey?"

It would depend somewhat on whether the cell was worker or drone size, also the length of it. I distinctly remember when my father kept bees in box hives with an inch auger hole in the top, over which were placed small boxes in which the surplus honey would be stored and when filled the honey cut out and boxes returned and refilled and we in this crude manner received some very choice combs of honey. One of these boxes, 12 inches in length, 6 inches high and 8 incher wide, was filled with one piece of comb running lengthwise and filled with basswood honey and nicely capped over by black bees. Combs built thus would require several trips at least for one bee to fill a cell. As to 20,000 trips being necessary to store a pound of honey I very much doubt, unless 75 per cent of it was moisture to be evaporated, and that would surely mean some bees in a hive in which 20 pounds or more were being stored per day, and also a good many trips for each field-worker. I would put it about one-fourth of 20,000 trips, waiving evaporation. If the estimate of 5,000 empty bees is correct per pound, my estimate has always been that during a good honey-flow a bee would at least carry her own weight in nectar, and if anyone can tell us what the evaporation would be we would all be glad to know it, and should it be 50 per cent, if my estimate is correct, then we could cut the 20,000 trips in half, which would surely be nearer correct.
ELIAS FOX, Wisconsin.

(Our correspondent is mistaken in believing that a bee can carry her own weight in honey or nectar, although this statement has already been made by others. These are mere guesses, but experiments have been made which give actual facts. L' Abbe Collin, a careful experimenter of the middle of the past century, reported that it takes 5,100 bees to weigh a pound in ordinary conditions. When they were in the swarm, filled with honey, it took only 4,300. Bernard De Gelieu, previously had placed the extreme limits of the number of bees in a pound, when full, at 3,640, and when empty of honey at 5,460. This would indicate that the extreme limit of a bee's capacity for honey is about half its own weight. But the average is much less, according to the careful experiments reported by Professor B. F. Koons in the A, B, C & X, Y, Z of Bee Culture. The conclusion arrived at in these experiments is that 10,000 bees **may be** able to carry a pound of honey or nectar, but that the average number of bees or trips required must be close to 20,000. The Collin figures would bring the number nearer 25,000.

Of course, in all this, the liquid carried must be nectar. Its evaporation after it reaches the hive is another matter and has no influence on the carrying power of a bee.—C. P. D.

### Interesting Plant Books

We are in receipt of two very attractive little books which will be helpful to those interested in determining the identities of trees and shrubs. Both are bound in flexible leather, pocket size, which makes it very convenient to carry them about. One, entitled "Winter Botany," is designed especially to enable the students to identify trees and shrubs during the winter months. This contains 434 pages, and sells for $2.50. The one designed for identification during the summer months is entitled "Plant Material of Decorative Gardening," and contains 204 pages, and sells for $1. Either of these books may be obtained from the author at prices named, William Trelease, Urbana, Ill.

### Beekeeping in Florida

Beekeeping can be made very profitable in the south, if the bees are properly protected against their natural enemies.

I find that if the bees are put in a shady place they will do 100 per cent better, in the way of producing.

Ants will also try to eat the colony, if not prevented, and especially is this the case with light, or sandy soils.

To keep ants from the hives, place a platform about 3 feet from the ground, and thoroughly coat the 2x4s or lumber connecting it with the ground, with thick coal tar.

If no coal tar is available, see that the legs of the posts are put in kerosene oil, and from time to time place new oil, as the ants will often try to bridge even the oil, after it has lain in the can some time.

Being above the ground, keeps the hives cooler, and out of reach of many a predatory animal, and if the posts are well coated, from time to time, or new oil is placed in the cans under the posts, it will be found that bees will seldom be molested.
B. YORKSTONE HOGG.

### Yellow Jackets

In the last issue of the American Bee Journal Doctor Miller, in regard to yellow jackets bothering bees, says: "I can't help you much." I find the yellow jackets can be easily disposed of. I take fly traps made out of wire-screenings, and bait them with meat. In a few hours they will be full. I then drown the pests in a pail of water and feed them to the chickens, which are very fond of them. ALFRED CARLING,
California.

### Pennsylvania Meetings

The newly-organized Montgomery County Beekeepers' Association held a very successful out-door meeting at the apiary of Mr. J. S. Shaeffer, Trooper, Pa., Saturday afternoon, May 3. More than thirty were present, a large portion being ladies.

On June 14, the Philadelphia Beekeepers' Association and the State Association will hold a combined meeting at the School of Horticulture for Women at Ambler, Pa., and on June 28 a combined meeting of the Philadelphia and Montgomery County Beekeepers' Associations will be held at the apiary of Mr. Wm. Wakeman, Washington Square, Pa. These meetings will be held during the honeyflow from clover, when the bees will be very busy, and much of interest to all beekeepers can be demonstrated.

CHAS. F. HOSER, Sec'y.

### St. Louis Meeting

The St. Louis County Beekeepers' Association will meet at the home of Chairman A. Beckard, in Webster Groves, Mo., on June 21. Mr. Beckard will talk on Foulbrood—Cause, Prevention and Cure. Mr. Ormond, the Government specialist, will also be present and speak.

### Death of Eugene Secor

As we go to press a news dispatch conveys the word that Eugene Secor, of Forest City, Iowa, was gored to death by a bull on May 14. This will be sad news to his many friends among our readers. An extended notice will appear in a later issue.

### Notice of Field Day Meeting

A field meeting of beekeepers will be held under the auspices of the Colorado Honey Producers' Association on Saturday, June 14, at Greeley, Col., at Island Park. A large attendance is expected and a good program will be provided. We expect several beekeepers of national reputation to be present at this meeting and give some interesting talks. The Greeley beekeepers will provide refreshments and will also have automobiles at the trains to meet beekepers that may arrive by train. Everyone interested in beekeeping who can arrange to be present at this meeting is cordially invited to come. C. H. WOLFE,
Chairman Entertainment Committee.
FRANK RAUCHFUSS, Secretary
Colorado Honey Producers' Association.

### Finding a Queen

I see in the April number a question asked from Oklahoma, "How to Find a Queen," on which I would like to give my experience. I had 6 queens arrive in one lot, thinking it would be easy to find the old queens after reading how to do the trick; but alas, I had about as good luck as Oklahoma did. So, after trying in vain to hire a beekeeper to help me find the queens, I was told to put an empty hive on the old stand, set the old hive beside it, place an entrance guard in front of empty hive, then shake the bees off from the combs in front of new hive, placing combs in empty hive after shaking all bees off. The workers will go in the new hive, as their combs are there, but the queen will be found trying to go through the guard.

J. ALLEN BELL.

## CLASSIFIED DEPARTMENT.

**Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.**

### BEES AND QUEENS

ITALIAN QUEENS AND NUCLEI—
Untested queens, $1; tested, $1.50; select tested, $2.50.
1-Frame Nucleus, $2.25; 2-frame, $4.00.
1-lb. package of bees, extra, $2.25; 2-lb. package, $4.00.
A trial order will convince you of their merits. H. A. McCarley, Mathis, Tex.

FOR SALE—Italian queens, carefully raised from some of the best stock. Just hatched, 75c; untested, $1. Orders booked now for summer and fall. James McKee,
Riverside, Calif.

FOR SALE—One of the best queen breeders in the United States is now raising queens for us from selected stock of leather-colored Italians. We offer warranted queens at $1 each, or $90 per hundred. Tested queens $2 each. Satisfaction and safe delivery guaranteed. Queens ready now for immediate delivery. Order now, as our supply is limited.
The Foster Honey & Mercantile Co.,
Boulder, Colo.

FOR SALE—Fine Italian queens, untested, $1 for one; $5.50 for six; tested, $2 for one; $9 for six; tested by return mail, untested ready June 1 to June 10.
R. B. Grout, Jamaica, Vt.

FOR SALE—Golden Italian queens, untested, $1 each; tested, $2.
J F. Michael, Winchester, Ind.

FOR SALE—Bees, $12 per colony; Cowan Rapid extractor, $23.
Lorenzo Clark, Winona, Minn.

FOR SALE—Italian queens of "Windmere" are productive and gentle. Untested, $1 each; six for $5.50. Prof. W. A. Matheny,
Ohio University, Athens, Ohio.

I. F. MILLER'S STRAIN Italian Queen Bees for sale. By return mail after June 5 to 10, or your money back. Northern bred, for business, from my best superior breeders; gentle, roll honey in, hardy, winter well, not inclined to swarm; leather color or 3-banded. Queens a specialty; 25 years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, $1; 6, $5.50; 12, $10. Select untested, $1.25; 6, $6.75; 12, $12.
I. F. Miller, Brookville, Pa., R. R. No 2.

FOR SALE—Leather colored Italian queens, tested, June 1, $1.50; untested, $1.25; $13 a dozen. A. W. Yates,
15 Chapman St., Hartford, Conn.

FOR SALE—Three-band Italian queens, untested queens $1.25 each, six $6.50, twelve $11.50; tested queens, $2.50 each.
Robert B. Spicer, Wharton, N. J.

QUEENS—Ready for delivery now; pure Italian queens, either 3-banded or golden, one, $1.25; six, $7; twelve, $12; 50, $47; 100, $90. Select tested, $2 each. Safe delivery guaranteed. George W. Brown,
Lynnhurst Apiary, Wilson, Wis.

100 COLONIES in 8-frame hives with one super each, for sale, or would work on halves with good man. Location fine.
Mrs. T. H. Carruth, Big Bend, La.

ITALIAN QUEENS—Northern-bred, three-banded,, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, $1; twelve, $11; fifty, $45. Send for circular.
J H. Haughey, Berrien Springs, Mich.

FOR SALE OR EXCHANGE—Bees in nucleus lots. F. T. Hoopes, E. Downingtown, Pa.

FOR SALE—Michigan bred Italian queens; am now booking orders for June 15 delivery; 3-band only; untested, 1, $1; 12, $10; 100, $80. Tested, $1.75 each.
D. A. Davis, North Detroit, Mich.

FOR SALE—Apiary of 100 strong colonies equipped for extracted honey, fine location; 500 full-depth supers, 100 shallow supers, 120-acre homestead, relinquishment goes with the bees; everything new and in fine condition. If interested, write for complete list and price.
J. B. Douglas, Box 1085, Tucson, Ariz.

FOR SALE—Hardy Italian queens, 1, $1; 10, $8. W. G. Lauver, Middletown, Pa., R. 3.

FOR SALE—Goldens, untested, 1, $1.25; 6, $6.50; 12, $11.50. S. A. Tyler, Emden, Ill.

THE EDSON APIARIES will have a surplus of A No. 1 laying Italian queens after May 1, leather colored or goldens; prices reasonable. Address Edson Apiaries prior to June 1, Biggs, Calif. After June 1, West Butte, Calif.

FOR SALE—150 colonies of bees in Iowa, mostly Italians. One 4 and two 2-frame extractors, storage tanks, empty hives and supplies, in good condition; will sell as one lot, or part No disease. Reason for sale, leaving the State. F. Eric Millen,
State Apiarist, Ames, Iowa.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. H. G. Dunn,
The Willows, San Jose, Calif.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. Garden City Apiaries,
San Jose, Calif.

FOR SALE—Bright Italian queens, $1 each; $10 per doz. Ready April 1. Safe arrival guaranteed.
T. J. Talley, R. 4, Greenville, Ala.

BEES AND QUEENS—When you can't get them from others you can from us. 1 lb. package, $2; 2-lb. package, $3.75 Queens, $1 each, $11 per doz. Good stock; no disease; order quick. Special prices on nuclei.
Pelican Apiary, New Orleans, La.

Head your colonies with Simmons' Famous Italian Queens. They took first premium at New York State Fair last September. Goldens or three-bands: 1, $1.50; 6, $7.50: 25, $30. Orders booked now and filled in rotation. Also nucleus from same stock ready for June delivery. Allen R Simmons,
Fairmount Apiary, Claverack, N. Y.

J. B. BROCKWELL'S Golden Queens, untested, May, June and July, $2 each; six, $7.50; doz., $14; tested, $4 each. Breeders, $5 to $20 each; 3-f. nuclei with tested queen, $9.
Barnetts, Va.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price Untested, $1; tested, $2.
Wallace R. Beaver, Lincoln, Ill.

FOR SALE—3-band Italian queens ready June 1. Untested, each $1; twelve, $10; 100, $80. No disease here and satisfaction guaranteed. A. E. Crandall & Son.
Berlin, Conn.

LEATHER and all dark colored Italian queens, when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock. C. W Phelps & Son,
No. 3 Wilcox St. Binghamton, N. Y.

SWARTS GOLDEN QUEENS produce golden bees of the highest quality; satisfaction guaranteed. Mated, $1, 6 for $5; tested, $2.
D L Swarts, Lancaster, O., Rt. 2.

FOR SALE—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, $1.25 each; 6, $6.50; 12, $11. Satisfaction guaranteed. W. T. Perdue,
Route No. 1, Fort Deposit, Ala.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2. C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

QUEENS FOR SALE—Quirin's hardy northern bred Italians will please you. All our yards are wintered on summer stands. Tested and breeders ready any time weather permits mailing. Untested about June 1. Orders booked now. Testimonials and price list for asking Have been a commercial queen-breeder for more than 25 years.
H. G. Quirin, Bellevue, Ohio.

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each; half doz., $4.50, or $8 per doz. Select untested, 90c each; half doz., $5.50, or $10 per doz. Tested, $1.50 each. Safe arrival guaranteed.
Tillery Bros., R. 5, Box 1D, Georgiana, Ala.

THE AMERICAN BEE JOURNAL is prepared to furnish printing for beekeepers. High quality, prompt service and satisfaction. Our shop is in charge of a man who specializes in printing for the honey producer. Send for our catalog of honey labels, stationery, etc.
American Bee Journal, Hamilton, Ill.

GOLDEN ITALIAN QUEENS and bees; honey-getters, prolific and gentle. Bees by the pound. Write for prices.
J. W. Rice, Box 64, Fort Smith, Ark.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

## FOR SALE

FOR SALE—One No. 15 Root's auto reversible honey extractor; good as new; takes 2 L. frames; best offer. Also, a few 8-frame dovetailed one-story hives and bodies, one-half current prices; some good worker-brood and extracting combs, at 10c each.
Theodore Fluegge,
33 N. Elgin Ave., Forest Park, Ill.

FOR SALE—Nearly new 25-22 cal. repeating rifle; Marlin model 94; will trade for extractor. Carl Franke, Mauston, Wis.

FOR SALE—Barnes No. 4 saw; good running order; 4 saws; first check for $42 gets it.
R. E. Hammond, Bethune, S. C.

FOR SALE—200 second-hand 60-lb. honey cans in good condition. John Kneser,
R. 1, Hales Corners, Wis.

FOR SALE—Bee hives, supers, sections, smokers, bee veils. Foundation and bee books illustrated. Catalog for stamp.
J. J. Fitzgerald, Mitchell, S. D.

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you. The Deroy Taylor Co.,
Newark, N. Y.

HATCHING EGGS—Plymouth Rocks, all varieties; Anconas and Rouen ducks. Illustrated catalog 3c.
Sheridan Poultry Yards,
R. 18, Sheridan, Mich.

FOR SALE—Frame nailing device. You can make very satisfactory and simple device. Send 50c for drawings showing construction and operation for nailing Hoffman frames; use idea for nailing any style of frame.
Clarence Aldrich, Santa Barbara, Calif.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

FOR SALE—40,000 pounds of No. 1 extracted clover honey and 35,000 pounds of aster honey; both of extra light color, heavy body and fine flavor, in 60-lb. cans.
W. B. Wallin, Brooksville, Ky.

FOR SALE—25 10-frame hives, never been used, full sheets foundation
30 lbs. foundation brood and surplus.
15 feeders.
70 10-frame queen excluders.
100 comb supers, 10-frame.
2,500 sections, 4¼x4¼x1⅞.
Five to six hundred extracting supers, with combs; no disease. E. Keister, Clarno, Wis.

FOR SALE—Silver Spangled Hamburg eggs and fine, rare old Paganini violin for sale.
Elias Fox, Union Center, Wis.

FOR SALE—A limited number of bees and queens for May delivery from either home apiaries or South Carolina; safe delivery guaranteed if shipped by express. Parcels post shipments at buyer's risk. We invite correspondence as to details and price.
The Deroy Taylor Co., Newark, N. Y.

FOR SALE—Due to my time being taken up with professional work this spring, I have more bees than I can take care of properly. If in the market for good colonies of bees, please address, J. F. Coyle, Penfield, Ill.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, $1. American Bee Journal,
Hamilton, Ill.

SPECIAL SALE—1-story 8-frame dovetailed hives in flat, with telescope ⅞ wood covers, in packages of 5, at $10 per package.
A. G. Woodman Co., Grand Rapids, Mich.

## SITUATIONS

WANTED—Man with some experience to work with bees coming season; state age, experience and wages; we furnish board. The Rocky Mountain Bee Co., Billings, Mont., Box 1319.

WANTED—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near Summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

WANTED—Position as manager of farm; over 15 years' experience; also capable beeman, practical carpenter and mechanic; 5 in family. Only year-around proposition considered. Theodore Fluegge,
33 N. Elgin Ave., Forest Park, Ill.

WANTED—Strong young man of good habits to work in apiary, garden, etc., in small village. Give experience with bees, wages wanted, references, etc.
W. D. Wright, Altamont, N. Y.

WANTED—Work for season with experienced beeman, by woman studying bee culture. Must be within reach of Denver car lines; will work all or part time.
Mrs. Josephine L. Ferguson,
1043 Clarkson St., Denver, Colo.,
Phone "York 9403."

## HONEY AND BEESWAX

FOR SALE — Buckwheat honey in 120-lb. cases, at 17c per pound. C. B. Howard,
Geneva. N. Y.

WE WANT every subscriber of the American Bee Journal to become a subscriber of the Domestic Beekeeper. Listen: A $5( or more) order of beekeepers' supplies at catalog price bought through the Domestic Beekeeper, Northstar, Mich., and a dollar extra for a year's subscription to the Domestic Beekeeper, will entitle you to a dollar rebate, leaving your subscription to the Domestic Beekeeper absolutely free. Could one ask more? This offer will give one an idea of what the Domestic Beekeeper is doing for its subscribers in the way of buying their supplies.

FOR SALE—Clover, heartsease, No. 1 white comb, $6 per case; fancy, $6.50; extra fancy, $7; 24 Danz. sections to case; extracted, 120-lb. cases, 25c per pound.
W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.
A. G. Woodman, Grand Rapids, Mich.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St. Chicago, Ill.

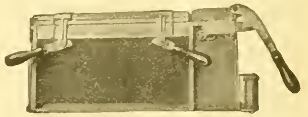
WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

## MISCELLANEOUS

E. D. TOWNSEND, the present owner of the Domestic Beekeeper, bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the Domestic Beekeeper at the same low manufacturers' price. Listen now what he has got up his sleeve: Any American Bee Journal subscriber buying $5 worth of supplies through the Domestic Beekeeper at catalog price, and sending along an extra dollar to pay for a year's subscription to the Domestic Beekeeper, will get in return a rebate check of $1, leaving the year's subscription to the Domestic Beekeeper absolutely free to you. Of course, if your order for supplies is larger than $5 you will have a correspondingly larger rebate check on your order. One of our subscribers got a rebate check on his order of supplies last month, March, of $40. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought through the regular dealer in beekeeper supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the Domestic Beekeeper. A word to the wise should be sufficient to cause you to send your next order for beekeeper supplies to the Domestic Beekeeper, Northstar, Michigan.

SONG—"The Plea of the Bee," or "The Honeybee Doing Its Bit." Sent to any address on receipt of 15 cents. The Cutting Publishing Co., 910 Merchants Bank Bldg., Indianapolis, Ind.



PAT. APPLIED FOR

**C. O. BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Does the work in half the time. Has been tried and is guaranteed to do accurate work. Makes the frames ready in one handling. Price $6.50.

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

Read ***"THE BEEKEEPER"***

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick.

Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year.**
**United States, $1.25. Foreign, $1.50**

**Send for a free sample copy.**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

THE WAGNER CAPPING MELTER—No experiment, in use over 5 years, highly recommended by practical apiarists all over the country; a perfect machine; saparates honey from cappings and broken combs, while at the same time heats honey knives. Cheapest in price, cheapest to operate. Price only $7.50, fully guaranteed A. F. Wagner, Bonita, San Diego Co., Calif.

## SUPPLIES

FOR SALE—25 pounds Dadant's extra thin comb-foundation at 75c per pound for the entire lot. F. E. Matzke, Juda, Wis.

FOR SALE—25 metal roof covers, 25 reversible bottoms, 100 deep extracting bodies without frames, all dovetailed 10-frame size Lewis ware; perfect, spotless, painted well two coats white; freight prepaid, $125. B. W. Wells, Appleton, Wis.

FOR SALE OR EXCHANGE—I have a 2-frame extractor in good running order, old style; will sell or exchange for a Dadant uncapping can. Elmer Kommer, R. No. 2, Woodhull, Ill.

FOR SALE—We offer the following second-hand supers, nailed and painted and in good shape:

47 8-frame Langstroth comb-honey supers, empty, at 15 cents each.

43 10-frame Langstroth comb-honey supers, some filled with sections, some empty, at 20 cents each.

Dadant & Sons, Hamilton, Ill.

WANTED—Used hives and supers, foundation mills, extractors, bees and bee equipment. State lowest cash price wanted. W. A. Latshaw Co., Carlisle, Ind.

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

## WANTED

WANTED—Second-hand extracter, 2-frame reversible Cowan No. 17 preferred. H. G. Kull, Trenton, Mo.

WANTED—Full or part time agents to sell our Income Protection Policies. All wage-earners will be interested. Exclusive territory. Direct home office contracts. Write National Casualty Co., Detroit, Mich.

WANTED—Good second-hand 2-frame Cowan honey extractor and steam uncapping knife; state lowest cash prices. Fred Kubicek, Box 276, Mellen, Wis.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses. Dadant & Sons, Hamilton, Ill.

WANTED—July, 1916, June, July and December, 1917, and January and March, 1918 numbers of the American Bee Journal; will pay 10 cents per copy. Please wrap so that the whole Journal is protected. American Bee Journal, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices. Superior Honey Co., Ogden, Utah.

WANTED—A second-hand 2-frame honey extractor and steam uncapping knife. Give full description and lowest price in first letter. J. J. Fitzgerald, Mitchell, S. D.

# Golden Italian Queens

Rustburg, Va., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

### PRICES OF QUEENS

| | Nov. 1st to June 1st | | | June 1st to July 1st | | | July 1st to Nov. 1st | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $8 50 | $15 00 | $1 50 | $7 50 | $13 50 | $1 25 | $6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Safe arrival, purity of mating and satisfaction guaranteed

**No Nuclei or Bees by Pound**

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

---

# Service and Quality

**Bee Supplies** **Bee Supplies**

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

**C. H. W. Weber & Company**

**2146 Central Avenue**
**CINCINNATI, OHIO**

---

# QUEENS QUEENS QUEENS

## GOLDEN AND THREE BANDED QUEENS

The demand for our Famous Disease Resisting Honey Gathering Hustlers is greater than ever before. Send for circular and price list

**BOOK YOUR ORDER NOW**

**M. C. BERRY & COMPANY, Hayneville, Ala.**

## DIXIE BEEKEEPER

The first edition of this paper is now out and we are ready for subscriptions or to mail out sample copies. It covers the entire Dixieland with 32 pages of the most instructive matter pertaining to keekeeping.

**THE SUBSCRIPTION IS ONE DOLLAR PER YEAR**

**DIXIE BEEKEEPER, Waycross, Ga.**

## Texas Bred Queens

As our **Bee Shipping** season is practically over by the first of June we will have some extra queens to offer at the following reduced prices. We have shipped thousands of pounds of bees and queens all over the United States and Canada again this season

| Number | 1 | 6 | 12 | 50 |
|---|---|---|---|---|
| Untested | $1.25 | $6.50 | $11.50 | $40.00 |
| Select untested | 1.50 | 7.50 | 13.50 | 48.00 |
| Tested | 2.00 | 10.50 | 18.50 | |
| Select tested | 2.75 | 15.00 | 27.00 | |

One-pound package of Bees $2.40, 25 or more $2.16 each, by express f. o. b. here.
Two-pound package of Bees $4.25, 25 or more $3.83 each, by express f. o. b. here.
Three-pound package of Bees $6.25 25 or more $5.62 each, by express f. o. b. here.
One frame regular Nuclei with 1 pound extra bees $4.50 each, by express f. o. b. here.
Two frame regular Nuclei with 1 pound extra bees $6.00 each, by express f. o. b. here.
One frame regular Nuclei with 2 pounds extra bees $6.00 each, by express f. o. b. here.
Two frame regular Nuclei with no extra bees $4.50 each, by express f. o. b. here.
Three frame regular Nuclei with no extra bees $6.00 each, by express f. o. b. here.

Add the price of Queen wanted when ordering bees. Circular free giving details.

**NUECES COUNTY APIARIES, CALALLEN, TEXAS**

## Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading

Send us your order for blank books and let us bind your magazines.

Following are prices of binding magazines:

| | |
|---|---|
| "American Bee Journal," cloth | $1.50 |
| Half leather | $1.75 |
| "Gleanings in Bee Culture," cloth | $1.25 |
| Half leather | $1.50 |

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**

### Honey Producers' Service

By Wesley Foster

I believe that I can help any beekeeper with a problem to solve, whether supply, producing, financial or selling, if he will write me a letter or pay me a visit and explain it to me.

**QUEENS**

We are operating 2,500 colonies of bees this year. They are building up strong and are all ready now for the honey-flow. At present we are requeening quite a few. We expect these queens to pay for themselves twice over. One of the best queen breeders in the United States is raising our queens for us from selected stock. If you need some good, warranted queens, unless you order now it will be too late.

**SUPPLIES**

We are carrying a complete line of Supplies and honey containers. You can save some money on every order by buying of us.

**BEESWAX**

We need some more beeswax. Have you any to spare? We can always use it at the highest market price.

**A NEW CAN**

I would like to tell you about a new 5-gallon can for honey that I now have. It is by far the best can that I have ever seen—practically one piece. The edges are rolled and are soldered by a special process inside and out. It has a 3-inch cap, which, as you know, makes it easy to fill. We are exclusive agents for this can in the Rocky Mountain region. It costs only a cent more than the old type.

Be sure to drop me a line at once in care of

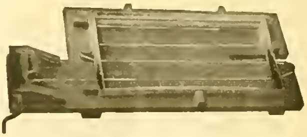
**THE FOSTER HONEY & MERC. CO.**
**Boulder, Colorado.**

## BEE SUPPLIES

**Let Us Figure With You**

Get our discounts before buying
Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
142 Grand Ave., Kansas City, Mo.



PATENTED
**Wright's Frame-Wiring Device**

Most rapid in use. Save cost of machine in one day. Tighter wires, no kinks, no sore hands.

**G. B. LEWIS CO.** Watertown Wis.

# Crop and Market Report

Compiled by M. G. Dadant

## CONDITION OF BEES

Bees throughout the country seem to be in at least as good shape as last spring, but in many instances they have run short of stores. The mild winter has been responsible for using up a larger amount of stores and the bees have also bred up faster in spring, so they are stronger. Where not liberally supplied with honey, bees in many places are in a starving condition, and it will take considerable feed to carry them through until the first flow comes. This should be done, however, or brood-rearing will cease, and the bees will dwindle by the time the honey-flow begins.

## HONEY CROP AND PLANT PROSPECTS

Throughout the whole of the East, and portions of the Central West, conditions are at least up to last year, and in many sections very much better. Illinois has very poor prospects, especially in the southern half, as does southern Indiana and some sections of Iowa and Missouri. Otherwise, conditions are very favorable for a good flow. In the West, it is too soon yet to make any guess, and in California prospects hardly seem to be up to normal. In Texas the conditions are very much better and the beekeepers there are looking for a good crop and a return to normal conditions, after many unfavorable years.

In the Southeast, conditions are about as good as last year, possibly a little better.

## HONEY CONTRACTS

There seem to be no honey buyers in the field as yet, as all markets seem to be well supplied with honey from last year's crop. One association is announcing to its members that they expect to be able to handle the crop at the price of 15 cents for amber extracted honey and a price of about 20 cents for bulk comb honey.

## STIMULATING HOME MARKET

In nearly all cases reporters stated that they were going to do their best to stimulate the home market and try to sell as much honey locally as possible. This will, no doubt, have a great deal of effect upon the prices in the larger centers if strictly adhered to by a majority of the beekeepers. In larger honey-producing sections where the population is not so scattered, there will be very little in the line of local sales. But in all of the East and Central West this action should dispose of a large amount of honey which would thus be kept out of the larger markets.

## WHAT WILL THE HONEY PRICE BE?

No association, except the one previously referred to, has given any intimation as to the price they will give for honey this year, although all members of associations seem to be very optimistic and feel that their association will sell for the highest figure possible.

There are many individual reports coming in that the beekeepers expect to realize a price of at least 15 cents per pound for extracted honey and in many cases the reporters state that they will not take less than 18 cents.

From the tone of reports, beekeepers are going to insist that they get a good price for their honey, and if they co-operate properly and do not throw large quantities of honey upon the market regardless of price, it is possible that the price can be maintained at a fairly high level.

With sugar selling at retail for from 11 to 13 cents per pound, there is no reason why honey should drop very much. Other food commodities have dropped very little and in many instances they have advanced. This is in direct opposition to the earlier statements that food prices were bound to drop right along.

The large honey markets still seem to be very well supplied with old crop honey, but in all instances it is commanding a fairly high figure, very few sales being reported at less than 15 cents, many of them from 16 to 19 cents.

The report from the Bureau of Markets shows that there has been considerable honey shipped to foreign markets during the month of April and the shipments go to practictlly all of the European countries, instead of only to the British Isles, as earlier in the year. New arrivals in the New York markets are mostly from the West Indies and are commanding a price of from 12½ to 15 cents per pound. When we figure that much of this honey is of a rather low grade, it does not seem to the writer that we should be much in fear of local honey going very slow.

It is, however, a peculiar condition just at present, and very likely the beekeepers themselves will have more to do with the honey prices during the coming year than ever before. A glutting of the market is bound to reduce the price, whereas a careful study of market conditions by each beekeeper or association and a careful selling of the produce should have the desired effect.

Two or three reports have come in indicating that there is a fear on the part of some that honey will sell as low as 10 cents per pound. Other prices do not warrant such a low price for honey, but such might be possible if the attitude of beekeepers was to sell at any figure.

Why Not Save Some Money on Your Reading Matter?

Every reader of the old American Bee Journal is familiar with the three great publications of the Curtis Publishing Co., I am sure. Here they are:

**Ladies' Home Journal** (monthly) ---------- $1.75
**Saturday Evening Post** (weekly ---------- $2.00
**Country Gentleman** (weekly Farm Paper) ---------- $1.00

**All three, one year, for** ---------- $4.75
**Add American Bee Journal for one year** ---------- $1.00

$5.75
**But I will send you all 4 of the above for an even** ---------- $5.00

Send me a list of what magazines you want and I will quote you a price that will save you some money. I would be glad to hear from my old friends of the American Bee Journal, and any new ones, too. I will appreciate your patronage. Address

GEORGE W. YORK, Sandpoint, Idaho

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 years a years a Queen-breeder

| PRICES | Before July 1st | | | After July 1st | | |
|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 |
| Select untested | $1.50 | $ 8.00 | $14.00 | $1.00 | $ 5.50 | $10 |
| Tested | 2.00 | 10.00 | 18.00 | 1.50 | 8.00 | 14 |
| Select tested | 2.50 | 14.00 | 25.00 | 2.00 | 10.00 | 18 |

**BREEDERS**—The cream from our entire stock of outyards, $5 each, usually we can send all queens promptly after June 10th.

Breeders, select tested and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

**H. G. QUIRIN, Bellevue, O.**

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | Nov. 1 to June 1 | | | June 1 to July 1 | | | July 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $16.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

## EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the **difference in quality vastly more than compensates for the difference in price."**

**A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

## BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments Our prices will interest you.

A trial order will convince you that our prices and goods are right.

**Send Us Your Inquiries**

**A. H. RUSCH & SON CO.**
**REEDSVILLE, WIS.**

## BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, $2; untested, $1.50. Price list free

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

## Golden Queens

After April 1, untested $1.25 each, 6 for $7, or $13 per doz. or 50 for $48. Also untested 3-band at same price; tested, $3 each, and my very best $5 each. Satisfaction.

**R. O. COX**
**Route 4, Greenville, Alabama**

**Don't stop advertising.**
because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 85c.
**American Bee Journal Hamilton, Illinois**

## WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

Mr. Beekeeper: Do you realize the busy season is at hand with prospects the best they have been in a long time? (Bees are strong and clover making rapid progress.)

Also, in concluding your plans, have you considered those customers who will buy and eat your comb honey, but will not touch your extracted honey at any price? Remember the successful manufacturer and producer turns out what the customer wants, not what he wants to produce. Remember the demands of the market.

Transportation is slow and uncertain. However, we have a complete and liberal stock of Lewis Beeware (Made like Furniture) and Dadant's Foundation (the leading Foundation manufactured in the World.) These Superior goods are at as low a price as sound business will warrant, not a price based on cheap, shoddy goods that can never please you any more than second-hand furniture or an old worn-out car or truck.

Parcel post orders receive prompt shipment, as do express orders, or better yet, if you live in driving distance, take your truck or car and come over and you will have what you want when you want it.

Have you our Lewis Bee Supply Catalog, or Beginner's Book? If not, a postal card will bring same. For Service and the Best in Apiculture, address the

**DEROY TAYLOR CO., Newark, Wayne Co., New York**

Do not forget the State Meeting at our Home Apiary August 1.

**MARSHFIELD GOODS**

**BEEKEEPERS**

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

**A BIG STOCK OF**

**BEE SUPPLIES**

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

**PORTER BEE ESCAPE SAVES HONEY TIME MONEY**

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

**PRODUCE MORE COMB HONEY**

**USE THE LOTZ ONE-PIECE SECTION**

the kind that does not break in folding.

We manufacture millions of sections each year, and therefore can fill your needs at all times.

We also carry a complete line of other Bee Supplies. Send us your inquiries and we will be pleased to quote you our best price.

Our 1919 Catalog free for asking.

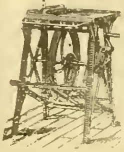
**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

**"QUEENS OF QUALITY"**

The genuine "Quality" kind of 3-band Italians—bred strictly for business. Write for circular.

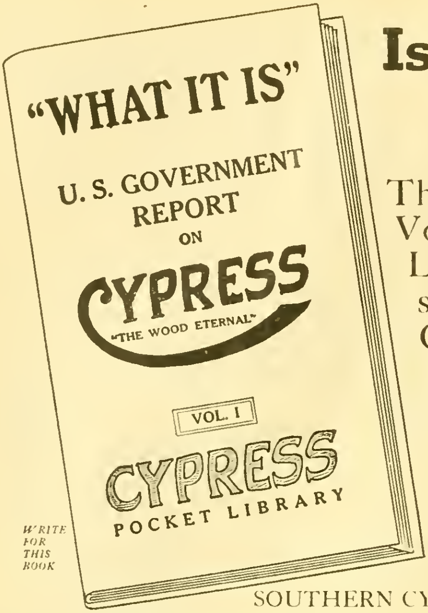
**J. IVAN BANKS, Dowelltown, Tenn.**

**BARNES' Foot-Power Machinery**



Read what J. L. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**



*WRITE FOR THIS BOOK*

# Is Uncle Sam's Word Good Enough?

Then Mr. Bee-man, just write for Volume I of the Cypress Pocket Library and read what our respected Uncle has to say about Cypress ("The Wood Eternal.") You'll then see why any beehive, or bottom or winter case not made of Cypress is not so good as it might be. 42 other volumes all free. The list is in Volume I. Write and it comes.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, *LET US KNOW IMMEDIATELY*

HIVES
FRAMES

MADE RIGHT BEE SUPPLIES
QUALITY SERVICE

SUPERS
SECTIONS

A COMPLETE LINE OF SUPPLIES

**THE KRETCHMER MFG. CO.,** Dept. A, Council Bluffs, Ia.

*Do you realize,*
*Mr. Beeman,*
*that*
*the first of March*
*has passed?*

June will soon be here
with its
hustle and bustle
for
*Bee Supplies*

"GRIGGS SAVES YOU FREIGHT"

**TOLEDO**

Why not send us your order now and get the goods ready? Don't delay. A list of goods wanted brings prices back by return mail.

***BEESWAX***

We use large quantities. Cash or in exchange for supplies. FREE catalogue ready to mail.

*S. J. GRIGGS & CO.*

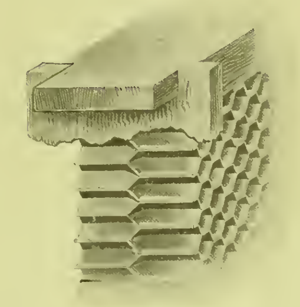
*Department 25* *TOLEDO, OHIO*

"GRIGGS SAVES YOU FREIGHT"

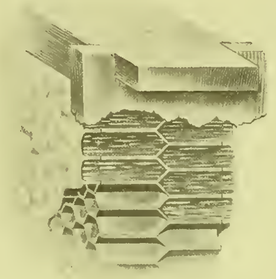
One of the Leading Bee Authorities of the United States is of the opinion that

# The Aluminum Honeycomb

**Is "The Greatest Single Appliance for Beekeeping that has been invented since the Extractor and Bee Comb Foundation"**



A Cross-section of Brood and Honey Aluminum Comb showing the size and shape of its cells.



The Aluminum Honey Comb is uncapped the same as a wax comb. Note in the above cut how bees build on a wax capping, which makes it easily uncapped with an uncapping knife.

**WE GUARANTEE THAT THE ALUMINUM COMB WILL**

Increase your production.
Enable you to control foulbrood and other diseases.
Prevent destruction from moths and rodents.
Control the breeding of drones.
Prevent loss from melting of combs.
Save in labor and worry.
Last forever with proper care.

In California, where the Honey Flow has started, thousands of these combs are in use and are now completely filled with brood and honey.

---

**Price $6 for Ten Combs, F. O. B., Los Angeles, Cal.**

---

ORDER TODAY FROM

## THE ALUMINUM HONEYCOMB CO.

**Sales Offices: 600 Central Building, Sixth and Main Streets**
**LOS ANGELES, CAL.**
**Factory at Upland, Cal.**

# ENTIRELY EXHAUSTED

So great has been the demand for copies of the A B C & X Y Z of Bee Culture that the new 1917 edition of 15,000 copies is entirely sold out. A

## NEW AND REVISED EDITION

will be ready for delivery by the first of July. It is already on the press, and a large part of the printing completed. If you are contemplating getting a copy of this great bee encyclopedia, put your order in now so as to get one of the first books as soon as they are completed

**THE A. I. ROOT CO.**
MEDINA, OHIO

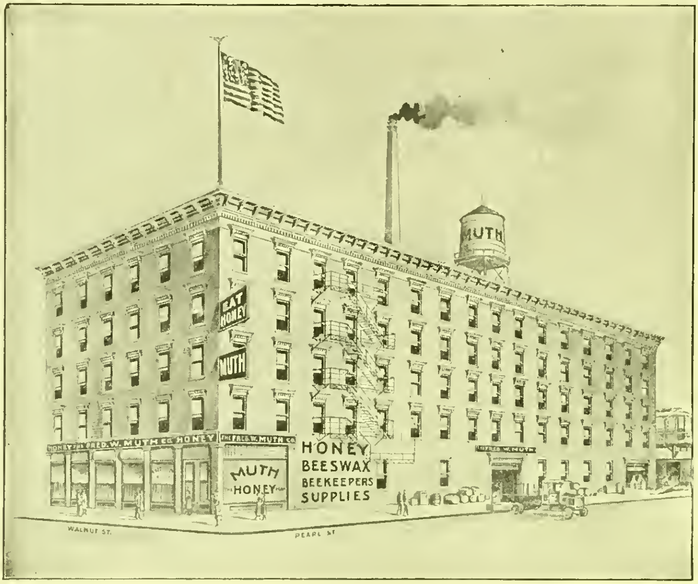
NEW YORK PHILADELPHIA CHICAGO
SAN FRANCISCO LOS ANGELES
ST. PAUL INDIANAPOLIS NORFOLK

AMERICAN BEE JOURNAL

JULY, 1919

EUGENE SECOR, WHOSE DEATH IS WIDELY MOURNED AMONG AMERICAN BEEKEEPERS

# Here's a Reproduction of Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

**LEWIS' BEEWARE**

**DADANT'S FOUNDATION**

**ROOT'S SMOKERS, EXTRACTORS, ETC.**

**OLD COMBS AND CAPPINGS**
Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**
Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

**THE FRED W. MUTH CO.**

Pearl and Walnut Streets
CINCINNATI OHIO

"THE BUSY BEEMEN"

# Four Bee Books

YOU SHOULD HAVE

## IN YOUR LIBRARY

### First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

### A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

### Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

### Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

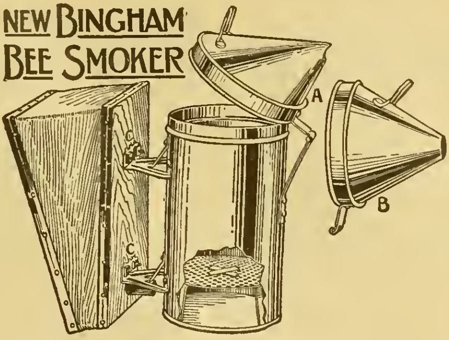
**Price $1.50**
Mailing weight, three pounds

ALL FOR SALE BY

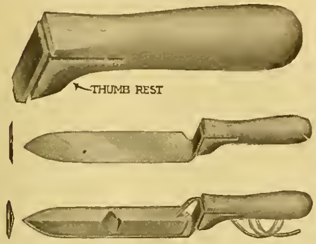
**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

---

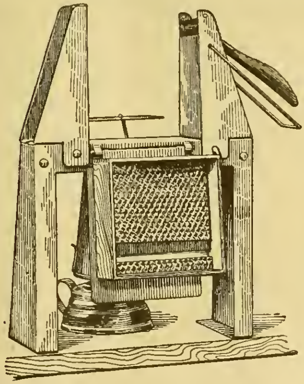
## NEW BINGHAM BEE SMOKER



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all important tool of the most extensive honey producers of the world. It is made in four sizes and has a leather bellows.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids, and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old-timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

The above specialties can be secured from us direct by post, or from practically all dealers and manufacturers of supplies, with the exception of the Root Company, and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

### TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60 pound Cans, giving quantity wanted.

**A. G. WOODMAN CO.**
GRAND RAPIDS, MICH., U. S. A.

"falcon" **BEE SUPPLIES** "falcon"

HIVES, SUPERS, FRAMES, SECTIONS, FOUNDATION
In fact anything in the line of Bee Supplies

Have you ordered your supplies yet for the season of 1919 which is now with us, or are you waiting for the last moment to come around when the supplies now carried in stock will be nearly exhausted, or the shipping department so busy that they will not be able to give you the quick service which you naturally expect? Just stop and think what would happen if all beekeepers would do this. To relieve the situation and to help conditions in general, get your order in at once.

We are prepared to make immediate shipments from our large warehouses, which were packed to the brim before the season started.

You all know what the **"Falcon"** line is, and you ought to know what the **"Falcon"** service is. If you never ordered from us before, better let us have the next order to convince you not only for once, but forever.

Send for the Red Catalog and "Simplified Beekeeping"

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
Where the Best Beehives Come From

**SUPERIOR FOUNDATION EXCELS**
READ THE FOLLOWING

Superior Honey Co.,
Ogden, Utah.

Cushman, Ore., June 8, 1919.

Dear Sirs:

Your Foundation arrived O. K. I gave some of it and some of the other make (in full sheets) to a natural swarm. In three days the bees had Superior Foundation nearly full drawn, and some of the cells at top of frames were two-thirds full of honey, while the other foundation was not over half drawn out. The other foundation was purchased this spring. I surely would ask for no better article than **SUPERIOR FOUNDATION**, as it is a first-class article. Shall use some more in the next natural swarm and report further results.

Yours respectfully,
L. W. DERRIN.

Our machines are running to full capacity. We guarantee prompt shipments.

**SUPERIOR HONEY CO., Ogden, Utah**
(Manufacturers of Weed Process Foundation)

**The Diamond Match Co.**
(APIARY DEPT.)
MANUFACTURERS OF
**Beekeepers' Supplies**
CHICO, CAL., U. S. A.

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
Apiary Department CHICO, CAL., U. S. A.

EARLY ORDER DISCOUNTS WILL
**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**
or J. W. ROUSE, Mexico, Mo.

**MOTT'S NORTHERN-BRED ITALIAN QUEENS**

that resist disease well, therefore must be hardy, prolific, and hustlers; they are gentle. Untested, $1 each, 6 for $5.50, 12 for $10. Select tested, $2 each. Plans, "How to Introduce Queens" and "Increase," 25c.

**E. E. MOTT, Glenwood, Mich.**

# DADANT SPECIALTIES

**DADANT'S FOUNDATION** World renowned for its excellence. Put to actual tests in our own apiaries of several hundred colonies. Every inch equal to sample in every respect. Acknowledged by hundreds of users to be the most readily drawn out by the bees, and therefore a saving to use under any circumstances

**ELECTRIC IMBEDDER** Melts the wires into the Foundation as if they had grown there. Requires only two dry cells to operate, or can be used on city current by use of a transformer which we furnish or which can be made at home. Full directions with each machine.

**BEE BOOKS** **First Lessons in Beekeeping,** by C. P. Dadant, is a thorough book for the beginner, while **The Honeybee,** by Langstroth and Dadant, is considered the classic in Bee Culture. **A Thousand Answers to Bee Keeping Questions,** by Dr. C. C. Miller, is a compilation of over 1,000 questions answered by Doctor Miller in his 60 years of beekeeping; for veteran and amateur alike. **Practical Queen-Rearing,** by Frank C. Pellett, gives the improved methods of rearing queens, with variations suitable for the home yard

**AMERICAN BEE JOURNAL** A monthly publication of 36 pages foremost in its field for the advancement of beekeeping. Contributors from all sections and all countries. The result of painstaking efforts and long experience of its editors, C. P. Dadant and Frank C. Pellett.

**HONEY LABELS** Distinctive designs, up-to-the-minute. We have just issued a label catalog with samples of stationery designed especially for the beekeeper. Write for your copy. All kinds of labels to fit all styles of packages. Attractive honey sellers.

*Read Our Catalog for Further Particulars*

## DADANT & SONS
**HAMILTON, ILLINOIS**

# A HURRY UP ORDER

Has the honey flow found you short of supplies? Have the bees exceeded your expectations? Do you need more supplies to harvest your 1919 crop? Then take your problem to a Lewis distributor. Wherever you are a Lewis distributor is near you. Lewis Beeware can be rushed to you "post haste." Then beside the Beeware Brand you get Lewis Service.

## OUR GUARANTEE

Every article is guaranteed. Your money back if you are not satisfied. If you purchase goods from one of our distributors, this same guarantee holds good, as we stand back of our product.

## WE WANT YOU TO SUCCEED

The G. B. Lewis Company welcomes the opportunity to offer you expert advice. Address inquiries to the company for the attention of "Bee Specialist." A "Pocket Library" of beekeeping booklets ready for distribution at a cost of five cents each is listed below.

"How to Start Beekeeping"
"How to Manage Bees"
"How to Prevent Swarming"
"How to Buy Queens"
"How to Feed Bees"
"How to Transfer Bees"
"How to Care for Nuclei"
"How to Unite Bees"
"How to Locate an Apiary"

Send for a Lewis Beeware Catalog
It is Free

**G. B. LEWIS CO.**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS WIS U.S.A.
MAKES THE FINEST

**Watertown, Wis.**

**LOOK FOR THE BEEWARE BRAND**

AMERICAN BEE JOURNAL

VOL. LIX—NO. 7 HAMILTON, ILL., JULY, 1919 MONTHLY, $1.00 A YEAR

# SOME OBSERVATIONS ON NOSEMA-DISEASE

By G. F. White, Bureau of Entomology, Washington, D. C.

NOSEMA-DISEASE, in many ways, is one of the most interesting of the diseases of adult bees. Doubtless the beekeeper already is quite familiar in a general way with the nature of the disorder since the bee journals have carefully presented the facts concerning the disease as they have been determined. Since 1910 the writer has been making some studies on the disease, and in the present communication there are discussed briefly some of the more important observations obtained which would seem to be of interest to all beekeepers. In a bulletin[*] (No. 780) recently issued by the United States Department of Agriculture, the writer has given in some detail the results obtained which have a more or less direct connection with the problems with which the practical apiarist is confronted. No direct work on the treatment of the disease was undertaken. In planning the investigations, however, the problems selected were of such a nature that the results obtained from them could be used by the beekeepers in devising methods for treatment.

### Nosema-disease Not a New Disorder

The disorder now known as Nosema-disease was reported by an European observer as early as 1857. That such a disease of bees exists was afterward almost forgotten until the fact was again brought to the attention of beekeepers in 1909. The disease is present at least in Australia, Switzerland, Germany, Denmark, England, Canada and the United States, and has been reported from Brazil, also. Most likely it has a much wider distribution, even, than this. The writer found Nosema infection in bees received from 27 different States in the United States.[*] These were from the North, the South, the East and the West. The disease is, therefore, very widely distributed in America and is not a new one to cause losses to apiaries. The information regarding the disease is of recent origin, but not the disease itself. It is better to think of the disorder as one which has been collecting toll from apiaries longer than bees have been kept in America, and probably longer than bees have been kept anywhere by man.

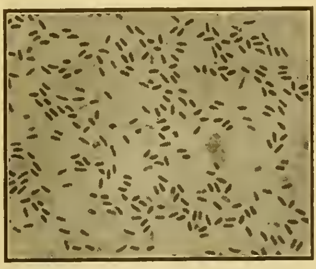


Fig. 1.—Photomicrograph of *Nosema Apis.*

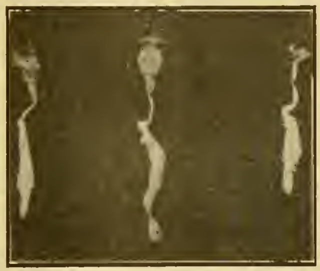


Fig. 2.—Stomachs removed from Nosema-diseased bees. Beginning at top the picture shows the tip of the abdomen, large intestine and small intestine. The proventriculus and honey sac are to be seen with the middle one of the three.

### Germ Causing Nosema-disease

The germ that causes Nosema-disease is a protozoan, a one-celled animal parasite. **Nosema apis** is the name which has been given to it. The parasite has a growing (vegetation) form and a spore (resting) form. To the apiarist the spore form is the more important. The spores are small oval bodies (fig 1) which, if placed end to end would require 5,000 to measure an inch, and if placed side by side would require 10,000 to measure this distance. These spores are taken into the stomach (fig. 2) by the adult bee, with the food or water. The digestive juices acting on the covering of the spore release the young parasite. These young forms immediately find their way to the wall (fig. 3) of the stomach and invade it. Once within the wall of the organ they grow rapidly and multiply to an enormous extent (figs. 3, 4, 5 and 6). Spores are then produced in large numbers and are shed into the stomach and, being mixed with the partially digested food (fig. 3), are carried through the remainder of the intestinal tract, to be voided with the excrement. Should such excrement reach the food or water supply of bees it will be seen how other bees might thus become diseased..

### Name of the Disease

Since Nosema-disease has affected apiaries as much in the past as at present, it is of interest to know the name used, by beekeepers, for the condition to which the losses due to it are attributed. Early during the writer's studies, it was observed that the highest percentage of Nosema-infected bees were present in weak

---

[*] Bulletin No. 780 was written primarily for beekeepers. Strictly technical discussions were purposely avoided in preparing it. While it contains some semi-technical terms, it is believed these will offer no particular obstacle to a satisfactory understanding of the subject matter presented.

[*] Bulletin No. 92, U. S. Department of Agriculture, May 15, 1914.

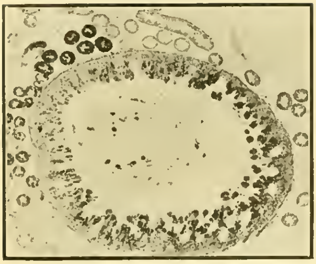


Fig. 3.—A magnified cross-section of a stomach shown in Fig. 2. The germs are stained black. Note that some of the germs have been shed into the stomach and are mixed with its contents.

colonies. This fact led to the request made of beekeepers, in different sections of the country for adult bees from weak colonies. Out of about 150 samples received in reply, fully one-half of them contained Nosema-infected bees. Nine well-informed beekeepers, among those sending samples, were asked concerning the name by which the disease condition was known to them. Of these 3 replied "spring dwindling", 2 "not spring dwindling", 2 said "weak colonies," and 1 wrote, "I don't know."

Bees from spring dwindling colonies were requested also from beekeepers. Out of 38 samples received, only 15 contained Nosema-infected bees. In reply to requests for bees from hives in which colonies had died during the winter, 19 samples were received and 7 of them contained Nosema-infected bees. Out of 5 samples taken from colonies which beekeepers had diagnosed as suffering from paralysis, no bees were found infected.

From these facts it will be observed that no one name was being used, by American beekeepers, for the condition to which the losses due to Nosema-disease were attributed. Some, it will be seen, referred to the condition as spring dwindling, but others did not. That the disease contributes in part to winter losses is quite evident. It is an interesting fact that neither paralysis nor dysentery was suggested, by beekeepers, for the condition in colonies in which Nosema-infected bees were present in large numbers.

When Zander reported his observations, in 1909, he used the name "infectious dysentery." This name was misleading, and fortunately he soon afterward introduced another one, which is more appropriate. As the common name for the disease, in English, the writer has suggested the term "Nosema-disease." This is simply a translation of the more appropriate name given to it by Zander.

That the following names have been used, in one or more countries and from time to time, for the disorder that is produced by **Nosema apis,** is very probable: Dysentery, paralysis, palsy, spring dwindling, dropsy, disappearing trick and Isle of Wight disease. To this list the beekeeper, most likely, could add many more. It is not at all probable, however, that any one of these had been used exclusively for the disorder now known as Nosema-disease. Whether the diseases of adult bees are few or many is not definitely known, but it seems probable that they are fewer than are the names which have been used for them. Practical beekeepers have made some interesting observations, on the adult bee diseases, but it must be admitted that very little of a definite character has yet been obtained, from an experimental and laboratory study of these diseases, excepting Nosema-disease.

A word should be said in regard to Isle of Wight disease, in order to allay any possible uneasiness which might be felt in America regarding it. The writer has not encountered, during his studies, any condition which causes the losses which have been attributed to Isle of Wight disease in England. Certainly Nosema-disease does not cause such losses in America. Since the Isle of Wight disease does not seem to be in America, fear by American beekeepers is scarcely justifiable at the present time. Students of the disease in Great Britain no doubt will supply, in due time, as a result of their investigations, the information on the disease which is wanting.

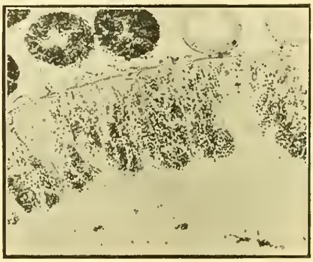


Fig. 4.—A portion of Fig. 3 more highly magnified.

Beekeepers will recall the technical name, "Microsporidiosis," which has been used for the disease caused by **Nosema apis.** This name was chosen because **Nosema apis** belongs to a group of protozoa "Microsporidia." While the name is appropriate, some criticism has been offered by beekeepers, because of its length and because it is not readily understood. By way of explanation of the term, it might be said that the term "nosemosis" could have been coined and used as the technical name in much the same way. The origin of the latter term will be readily recognized.

### The Experimental Apiary

Much concerning the nature of Nosema-disease has been learned by observing it in the experimental apiary. The space occupied by the apiary (fig. 7) was broken up by small trees. In arranging the hives, uniformity as to their relation to each other was intentionally avoided. A nucleus which could be accommodated comfortably on from 4 to 6 brood-frames was found to serve well the purposes of an experimental colony. The entrance to the hive (fig. 8) was closed except a small space on the side occupied by the frames with wire cloth. Shallow dishes placed on the bottom-board on the side occupied by the brood-frames were used as feeders.

At the beginning of the experiments all of the colonies of the apiary were free, or practically free, from Nosema infection. In making the inoculations the experimental colonies were fed about one half pint of sugar syrup, to which had been added the crushed stomach of Nosema-diseased bees. These colonies were left in the apiary and were not confined, but were allowed to enjoy the same freedom after the inoculation as before.

### How to Examine Bees for Nosema-disease

Upon examining a large number of young bees it was observed that among them there were practically no Nosema-diseased ones. The same was found to be true of the very old bees. In making the examination, therefore, for Nosema-disease in colonies, bees that were neither very young nor very old were selected. As drones are not likely to be found infected, except in experimental colonies recently inoculated, they were not chosen in making the examinations. As the brood does not become infected, it cannot be used.

The younger bees may be avoided by selecting field bees and the very oldest ones may be omitted from the samples taken by avoiding those that are shiny. It was found that for most purposes 10 bees make a very satisfactory sample for examination. The bees are taken at the entrance of the hive. Those carrying pollen, if pollen is being brought in, are the ones chosen, as they are readily recognized as field bees. As an individual bee, sick of Nosema-disease, presents no outward evidence of disease, and since only by the changed appearance of the stomach can the disease be diagnosed, the bee must be sacrificed in making the diagnosis. They are caught by the thorax with forceps and by slight pressure are easily killed.

In removing the stomach, the thorax is held between the thumb and index finger of one hand, and with fine-pointed forceps (preferably curved) in the other, the tip of the abdomen

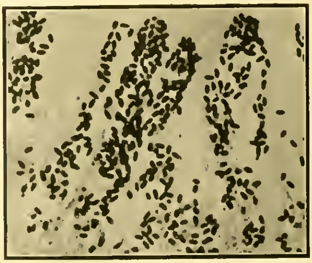


Fig. 5—Shows a still higher magnification than Fig. 4.

is seized. By gentle traction the digestive tract forward to and including the stomach, and occasionally also, the proventriculus and honey sac, may be removed (fig. 2). The largest and usually the last portion to come away by this method is the stomach (ventriculus). This is a relatively thick-walled, elongated and more or less spindle-shaped organ.

The color and size of healthy stomachs are variable. They vary somewhat with the age of the bee and also with the season of the year. The color of the stomach of workers ranges from a light yellowish brown to a deep red, corresponding to the flesh of the ox. Sometimes the appearance of the organ is due, in part, to the presence of pollen in it. The stomach of the drone is smaller and lighter in color than that of the worker. The stomach of the queen is also smaller than that of the worker, but less difference exists, in her case, than in the case of the drone.

The diseased stomach is lighter in color than the healthy one. Late in the course of the disease it is white. The diseased organ not infrequently tears by the traction which is necessary to its removal and is more easily crushed than the healthy one, and when crushed the mass is milky in appearance.

### Nosema-disease Weakens Colonies

Since the stomach of a bee (figs. 2, 3, 4, 5 and 6) is very abnormal in Nosema-disease, it is only natural to expect that an affected bee is less efficient as a member of the colony than a healthy one. The results obtained from experiments support this position. It was found that the strength of experimental colonies diminished as a result of Nosema infection, when no brood, or very little of it, was being reared. Furthermore, it was found that by inoculating a colony every 3 or 4 weeks during the more active brood-rearing season, the strength of the colony remains more or less uniform, while colonies in the same apiary which have not been inoculated make the customary gain.

Fig. 7.—Apiary in which the 1915 experiments were conducted.

Ten colonies, each of which were easily accommodated on from 6 to 7 brood-frames, were inoculated about the middle of September, 1912. These weakened as a result of the infection that was produced. By the middle of May of the following spring, 5 of them were dead. The 5 that lived through the winter, though weak in the spring, recovered from the infection, gained in strength during the brood season, and by autumn were as strong as the average for the apiary. Colonies inoculated at the beginning of the active brood-rearing season first lose, but later gain in strength, due to the young bees that are produced. Such colonies, however, are not as strong relatively as the uninoculated ones. It is seen, therefore, that Nosema-disease does tend to weaken colonies.

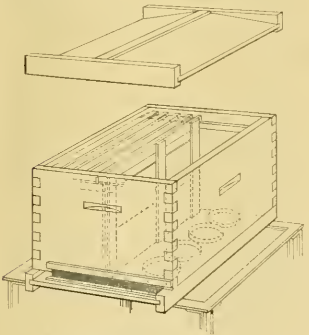


Fig. 8.—Hive employed to house and feed an experimental colony.

### Nosema-disease Sometimes Kills Colonies

From what has just been said it might be expected that Nosema-disease, under certain circumstances, may kill colonies. Those which were inoculated in the fall of the year, after the brood-rearing season was over, invariably died somewhat later during the winter.

Not only was the disease studied in colonies in which it had been produced by experimental inoculation, but also in an apiary in which it was contracted through natural means. Such an apiary, located near Washington, D. C., furnished a favorable opportunity for a 3-year observation of the disorder as it occurs in nature. The April count of the apiary in 1912 was 24 colonies.

Of these, 5 died during the bee season and were dead by the end of May. The percentage of Nosema-infected bees, among the field bees of these colonies, ranged from 50 to 100 per cent. Results similar to these were obtained during the remaining two and one-half summers that the studies were being made on the apiary. The facts determined show that Nosema-disease may, and sometimes does, kill colonies.

### Colonies Have a Tendency to Recover From Nosema-disease

In order to maintain Nosema infection, in an experimental colony, during the more active bee season, repeated inoculations were necessary. In about 2 weeks after an inoculation feeding, practically all field bees are diseased, but after 1 month very few infected ones are present. The diseased bees die, the young ones emerging are healthy, the infection spreads very little, if any, from the sick bees to the healthy ones, and as a result the colony is comparatively free from infection. It was seen from the experiment referred to above, that 5 out of the 10 colonies inoculated in September wintered, and by the fol-

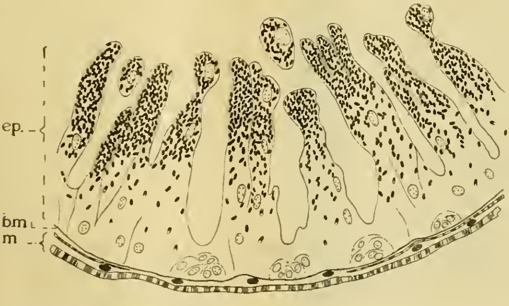


Fig. 6.—Drawing of section of the wall of diseased stomach. The cells lining the stomach which secrete digestive juices and probably also absorb some food substances, are filled with the germs. (Proc. Ent. Soc. Wash. 1918.)

lowing fall equaled in strength the uninoculated colonies of the apiary.

During the studies made in 1912, on the disease occurring in nature, it was found that each of the 19 colonies of the apiary contained some Nosema-infected bees at one time or another. These colonies gained in strength during the summer and contained a smaller percentage of Nosema-infected bees in the fall of the year than in the spring. The percentage of colonies that died during the winter 1912-1913 was less than during the winter 1911-1912. Nosema infection was present in the apiary in 1913, 1914 and 1915, but a relatively fewer number of colonies died during the latter years than in 1912.

It is seen again that while some colonies do die of Nosema-disease, by far the greater number of infected ones do not. The colony, therefore, tends, in a general way, to recover from the disease. In other words, in the case of Nosema-disease the tendency of the colony to recover from the disorder is greater, as a rule, than is the tendency of the disease to destroy the colony.

(Continued in August Number)

## The Senses of Bees

By J. E. Crane

DURING the summer of 1918, while inspecting a yard of bees, I incidentally asked the proprietor if he knew where the bees got the wax with which to build their combs. Much to my surprise, I found he had not the slightest idea as to where the wax came from. Later I put the same question to another beekeeper, who was the proud possessor of 100 colonies, and found him no wiser. So I have been wondering if our journals and writers are not taking more space in discussing hives, tools and necessary manipulations to secure the greatest profit, than in the study of the bees themselves, which are among the most interesting creatures with which we have to do. More space in proportion to its importance, I mean.

Suppose we think for a little time on the senses of bees. Have we stopped to think that bees have various senses the same as ourselves, and are guided by them the same as we are? Hearing, seeing, tasting, smelling, and the sense of touch or feeling, and perhaps others. I have placed hearing first, although there are many who still doubt whether bees can hear.

The fact that bees make several distinct sounds would indicate that they are made for a purpose. Those with some experience recognize the sharp, high key of an angry bee. "I no like it when they go zing," said a Frenchman who used to visit one of our yards. Neither do we like it, for we feel instinctively that not only the bee that makes the sound is likely to sting, but others will be attracted by the sound and sail in to drive away the intruder. How many times have we seen a swarm in the air apparently in trouble? We find the queen that has dropped to the earth and place her where the bees had begun to cluster, and, presto! what a change! There is now a joyful sound and the bees flock to the spot where the queen was placed. Almost always, if a swarm has clustered within reach, I take a pint or more of bees and place at the entrance or inside the hive, that they may first find the home they want and call the swarm when shaken in front of it.

What wonderful eyes bees have! Thousands of them covering a large part of the head, and so arranged that they can see in almost every direction at the same time. This is important, as they cannot turn their heads as birds and animals can. How desirable that they take in so large a part of the landscape at once in their search for flowers. Lacking the power to change the focus of their eyes, some of these compound eyes may be adapted to seeing long distances, and others to near-by objects. What an admirable arrangement!

While bees have a keen sense of taste they can hardly be said to be fastidious, for they gather many different kinds of honey; the mild-flavored kinds as well as those that are bitter or rank tasting. This is well, for if they were willing to gather only the choicest grades, they would starve in many places, yet when they can choose, they, as a rule, prefer the finer, mild-flavored kinds. There are well-marked differences in different colonies, some working much better on dark, ill-flavored honey than others. Black bees, as a rule, will gather much more of buckwheat honey than Italians under the same conditions. Some colonies take more readily to gathering honeydew than others, although it is within the reach of all.

The sense of smell in bees is so acute and wonderful that we can hardly comprehend it; their very existence depends upon it. It may even surpass that of a fox or blood-hound. By it bees can recognize their own queen from a stranger. The bees that stand on guard at the entrance of their hive can, by their sense of smell, tell the inmates of their hive as they return from a flight from bees from other hives. Von Butel Reepen believes that bees recognize eight different odors about their hives. But this sense is one of the most important in their search for honey or nectar.

A friend was telling me some time ago how he stored some honey in a spare room on the first floor of his house; after stopping every crack and crevice of doors and windows, he found bees getting into the room, and on watching he found the bees came down the chimney and into the room through an open fireplace. Have we stopped to inquire how the bees find the flowers that yield nectar? Of course bees can see fruit trees or a field of buckwheat or mustard and be attracted to them, but most flowers that yield nectar are comparatively inconspicuous, and something is needed to guide the bees in their flight other than their eyes. A hunter goes to the fields or woods for a day's recreation hunting bees. If he finds a bee on a flower he feeds it and sends it home to get the line; but if he finds no bees he burns a little piece of comb that the odor may drift off with the smoke and attract the bees. One hunter, unable to find a bee, used this method and after waiting a long time a bee appeared, which they were able to line some six miles to its home. A bee leaves its hive in search of honey, flying in ever widening circles until it comes across the odor of some nectar-yielding flower, when it follows it as a fox-hound follows the trail of a fox that has passed, it may be, several hours before. Nothing seems to escape them in their search, whether it be an isolated burdock back of the barn, a little patch of mignonette in the flower garden, or a few stray clover blossoms in the lawn.

How about the drones? They do not gather nectar nor guard the hive, and yet we are told this sense is more highly developed in them than in worker bees. The only excuse for drones is said to be the perpetuation

Experimental apiary and garden of W. J. Sheppard, Nelson, British Columbia
Toledo, Ohio

of the species, and this depends on their ability to meet the queen in flight. Now, if the queen leaves a trail of odor in her flight through the air, as I believe she does, this keen sense of smell will multiply many times the chance of a drone meeting her. J. Henri Fabre tells of hatching some female moths or butterflies in cages in his house when, soon after, his house was literally surrounded by males. He could only account for it by the keen sense of smell in the males.

The sense of touch is very highly developed in bees. I have sometimes been asked whether bees could work in the dark, the questioner little thinking it is always dark inside a hive. It appears to be largely by this sense the bees are able to find their way around inside a hive crowded with bees. In our childhood we called the antennae of bees their "feelers," and so they are, most emphatically, but their sense of touch is not confined to these organs; their tongues and mouth parts are also very sensitive. This enables them to watch the hatching brood and feed it as its age requires. Not only is the keen sense of touch required in the rearing of brood, but in working and moulding their wax into the most exquisite combs, with cell-walls so thin that hundreds of the sides can be laid on top of each other before they will make an inch in thickness. Yet I have never seen one made with a hole through it. The touch of human fingers cannot be compared in delicacy to that of bees.

Many other things might be said in regard to the senses of bees, but if I have said enough to excite the reader's curiosity and lead to study the bees themselves, they will find a never-ending source of recreation and pleasure.

Middlebury, Vt.

## Examination of Colonies

The Secretary of our local bee association asserts that last year he examined 300 colonies in three days. Last year he had 600 colonies and says that by this year's working time he will have 800.

What I would like to know of you is, how many colonies, examined, do you call a fair day's work? I have never yet examined otherwise than by removing each frame from the hive-body, looking at both sides, etc.' and, of course, no one could thus do as many as stated.

Probably you examine by just lifting up the rear of a hive—but what about same slipping forward? What about doing this with your heavy hives?

Then what do you see? Are there not often queen-cells in center of frame, thus invisible from below? Then, if there are cups along lower rim of frame, one often could not see whether they contain eggs or not. Dr. Miller has stated that unless cups contain eggs they are insignificant as to impending swarming.

What I would like to know is as to the minutia of colony examination that can be gone through with, quicker than my way as above stated, and then, to what extent such examination can be made to cover the maximum of ground. For instance, one thing seems sure, that 800 colony beeman, by his way of lifting up the rear, can't ascertain anything about queenlessness.

ULSTER, PA.

Answer.—This is a moot question, very much debatable. First, the apiarist may be slow or quick in action, and that would affect the result. One day two men came to paint the cupola of my barn. While one was looking at it and lighting his pipe, probably deliberating how to go at it, the other one had grabbed a ladder, climbed to the roof, crawled to the comb of it, and handed down the end of a rope which was wound around his waist, before the other man's pipe was fully lit. He called for scaffolding and nails and hammer. The first man was probably **methodical**, but this one was **practical**.

I believe 300 colonies may be summarily examined in 3 days, besides making the trip to each apiary. Each hive may be opened, and a glance given to the top of the combs, to ascertain whether they have honey and brood. The queenless ones may be marked, those short of stores may be helped from the surplus of others or supplied from combs at hand. But no thorough examination may be made in that length of time, even by the man who climbed the roof of my barn while his partner lighted his pipe.

No, we do not lift the rear of a hive to ascertain whether they have what they need. But after making sure that they are all right, we might lift a very heavy-looking colony and a very light-looking one to establish a comparison.

If you must look for queen-cells, then do not figure on attending properly to more than 50 or 60 colonies. Personally, we do not look for queen-cells. We expect our bees to get along with very little cell building, if we keep young queens in the hives. Dr. Miller is correct, we think, when he says that cell-cups that do not contain eggs are of no importance.

Queenlessness should be readily ascertained from the outside, as you pass along the row. A queenright colony is busy flying back and forth. A queenless colony is listless and indifferent in action. But we should at least open every hive, and the first sight of the inside, without lifting more than one or two frames, should enlighten us.

Finding out the condition of the colonies is less than half the work, if we have either queenless or starving colonies. The labor consists in remedying the faults; feeding the colonies that are short; uniting or requeening the colonies that are queenless. If our colonies are all strong and all have plenty of stores, the work will be short and the result satisfactory. But this would be an ideal situation. Do we often find it?

The amount of time required to examine 300 colonies, in 3 apiaries, depends on the condition of the bees in those apiaries and upon the season of the year at which we make the examination. It depends also upon just what we want to do. A very practical beekeeper could probably examine 100 colonies during the day and, marking them as he goes, place them in 3 or 4 classes: 1, the good ones, having plenty of brood and honey; 2, the middling ones, having both brood and honey, but of doubtful amount; 3, the poor ones, with some brood and short of stores; 4, the bad ones, queenless or starving. In making this examination he would not be expected to lift the combs of any but the dubious ones. In some cases, he might have to lift all the combs of a colony. But in all this he could do but little to remedy defects, unless he took more time.

If the bees are in good shape, a man can put on the supers—if they are ready—in less time than it requires to examine the bees. So. much depends upon the condition of the colonies.—C. P. D.

West Virginia bees packed for winter. L. O. Simmons' apiary at Martinton.

AMERICAN BEE JOURNAL
Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF
C. P. DADANT ....................Editor
FRANK C. PELLETT ....................Associate Editor
C. C. MILLER ....................Questions Department
MAURICE G DADANT ....................Business Manager

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

## Exporting Our Product

The American Shipping Board, under date of May 17, published a letter from the Director of Division of Operations showing that there is no reason why America should not be one of the most successful shipping countries and advancing the very powerful and rational argument that, since we carry cargo on the Great Lakes at the lowest cost per ton known in the world's commerce, we should also be able to carry goods to foreign countries at as low a rate as any other nation.

This is sound argument. We need to produce and export our surplus, whether wheat or honey, and we need to import many articles which cannot be produced at home. Let us urge the aggrandizement of our merchant marine.

## Diseases of the Adult Bee

The leading article of this number is the beginning of the study of Nosema, by Dr. White. Most of our readers know that Dr. White was the first scientist to positively differentiate between the two main diseases of brood. His studies, completed by Dr. Phillips in additional descriptions, easily place him at the head of students in brood diseases, we believe.

The study of diseases of the adult bee is in its infancy. But scientists, on both sides of the Atlantic, are making investigations. The April number of the "Scottish Journal of Agriculture" contains a 14-page article relating the experiments in Isle of Wight Disease made by Messrs. John Rennie and Elsie J. Harvey. The experiments related are valuable, but we are far from definite and positive knowledge concerning the causes and remedies of the different diseases of adult bees.

Those of our readers who are interested in these studies will do well to preserve this number of the Journal until the entire study of Dr. White is published, which will be in the next one or two issues. Sooner or later, with the help of these careful students, the causes and cure of the different adult bee diseases will be found.

The same number of the above-named publication also contains an interesting article on Scottish beekeeping by our friend and correspondent, John Anderson, M. A. Copies of this magazine may be obtained by sending 8½ pence to H. M. Stationery Office, 23 Forth St., Edinburgh.

## Another Boost of Freight Rates on Honey

Just now there is up before the Interstate Commerce Commission a proposition to raise the classification on honey. A hearing was held on the proposal to raise the rate on extracted honey, in barrels, from fourth to third class in the southern classification. Our associate editor, together with a representative of the Root Company and one of the G. B. Lewis Company, was present at this hearing in an effort to make a showing for the beekeepers.

It is a difficult matter to keep down freight rates as long as beekeepers insist on shipping honey to market in packages which will not carry safely. Barrels with less than eight hoops should never be used for shipping honey, and only good hardwood barrels or new barrels of other kinds should be used. Saving a few cents in the cost of a shipping container at the expense of higher freight rates is poor economy. Too many beekeepers refuse to take sufficient precaution in preparing their honey for shipment, thinking that the railroad company will have to pay for any loss. In the end the shipper always pays the loss with a margin beside. The average of losses are charged up in the form of higher rates and the careful shipper is penalized for the damage done by the careless one.

The use of cheap cases should be discouraged. Veneer cases for 60-pound cans should not be offered for sale at any price. The safe case is cheapest, in the end, every time. The breaking of a case of honey in a freight car is an expensive thing Honey smeared over other goods is likely to cause a big loss aside from the honey itself, but it is all charged to the honey, and when the rates will not pay it, up go the rates. There is no better service that beekeeping organizations can do than to look after this matter of proper containers for shipping honey. We all help to pay the bill for the other fellow's carelessness.

## The Colony Morale

Having traveled, only a few weeks before, among the steep hills and along the deep lakes of New York State, in my trip to Cornell University, I found it quite a contrast to travel from Chicago to Lafayette, Ind., on the almost lake-level route of the Monon. I was under the impression that the builders of this railroad had named it thus originally because they considered it "the only one" worthy of the name of railroad (from the Greek, monos, unique). But this is only the name of a town through which the line passes, and thus I lost some imaginary poetical idea connected with prosaic railroading.

Purdue contrasts greatly with Cornell, in the scenery. Were it not for the Wabash river, which separates the university from the city of Lafayette, and a slight hill to ascend before reaching the grounds, one could not find tamer scenery. The University itself compares well with others in its extent, its buildings and the courses it furnishes to the student. A very interesting trip through the institution was given us on the fourth day, under the guidance of Dr. J. Troop. Entomologist. Universities usually neglect an opportunity of this sort to make themselves known, to strangers, in their details.

The course in beekeeping was held

in the main agricultural building. The attendance was not large, perhaps only a third of that at Cornell, not over 50. If beekeepers only knew how much they can learn at such courses, the attendance would have been ten times as large. Courses in beekeeping are a new thing, comparatively, and we, old heads in the commercial line are apt to overestimate our knowledge and make light of the theories brought forward, backed by experiments which sometimes contradict our preconceived ideas. Much that we think we know we have to "unlearn" or correct.

As I was present during only two days of the course, it will be out of the question to give a review of it all. I prefer to speak of only one point which impressed me more than any other. This was brought out by Mr. Demuth under the name of "morale."

We already know that we must rear the excess of our bees **for the crop** and not **on the crop.** But we must also be careful to encourage their morale, or their activity at the time the crop is on.

Do bees loaf, and what causes them to loaf? Although the actual loafing of bees may seem preposterous as an affirmation, there is no doubt that colonies of certain disposition or in certain circumstances show more activity than others. I positively know that colonies which have been transported from one spot to another some distance away, in spring, show more activity than others that have remained at the old stand. There appears to be something in the change of surroundings, or in the shaking-up which they have experienced, which impels them to greater activity.

That some bees do loaf at times seems quite plain when we examine a colony of bees and see the unconcerned appearance of many of them, which contrasts with the activity of many others in the same hive. Everybody knows that a queenless colony loses much of its activity; that a colony from which the honey has been extracted, during the crop, and combs returned to it still daubed with honey, will more eagerly go to work; that when a super is raised which is almost full and an empty one placed between it and the brood-chamber, the bees seem to hasten to fill the vacant space.

As Mr. Demuth put it, "if we can increase the activity of our field workers by one single trip a day we will increase our crop largely."

Empty cells near the brood urge the bees to greater activity. If we can fix our colonies so the bees cannot see the finish of their job, a hive full, we will keep them in a condition of greater activity.

Although we mentioned this possibility of greater activity years ago, yet we did not put as much stress upon it as does Mr. Demuth. He is surely right. Others have spoken of it before. The "baits" or partly built sections put into a super are inducements to greater activity. In paragraph 745 of the "Hive and Honey Bee," at the end of the chapter on "Comb-honey Production," we quoted W. Z. Hutchinson, who at page 18 of his "Production of Comb Honey," wrote: "We have seen bees sulk for days during a good honey-flow, simply because the present condition of things was not to their liking."

If I had gained but this emphasized idea concerning the required "morale" of the colonies during the crop, I should consider my trip to Purdue well paid.

Let me close this argument on morale by quoting Demuth's comparison of men and bees: "We should try to increase the activity or morale of our bees during the crop in a way similar to the increased activity of the human race, caused by the late war."

### Beekeepers Should Be Organized

It is becoming more and more apparent that only through general organization can the beekeeper hope to secure such a measure of prosperity permanently as is opening for other lines of business. Labor is now thoroughly organized in all the trades, and these various organizations are federated into one body, which is very effective in securing for the laboring man the rights to which he is entitled. Big business is being organized in a similar way, and there is a federation of business men, which looks after the interests of business.

Unless the various agricultural activities shall become organized in a similar manner, there will be no means of securing the ear of the public as to the needs of agriculture. The unorganized business is the last to secure attention, and the first to suffer inconvenience in any abnormal condition. It is to be hoped that the beekeepers will see the necessity of organizing into local associations and that some plan can be worked out of federating these local associations into a general organization which will be sufficiently powerful to meet any emergency that may arise.

### Beekeepers' Letter

The Michigan Agricultural College issues circulars with the above title, in co-operation with the Extension Division of the U. S. Department of Agriculture. The May letter by that active worker, B. F. Kindig, drew our attention very especially because he quotes extensively from our editor's address of the past winter to the Michigan State Association, on "Large Hives." That subject seems uppermost in many minds, among beekeepers. We even find it discussed at length, at the antipodes, in the April number of the Queensland Beekeepers' Association Journal. The idea of large brood-chambers is apparently accepted everywhere. The Europeans accepted it long ago, with the movable frames. The only question debated now in this country is: "In what shape should the large brood-chambers be used?"

The Beekeepers' Letter above mentioned also calls attention to the occasional similarity in appearance between American and European foulbroods. The statement is made that the two diseases rarely appear in the same colony at the same time. Are we very sure of this?

### Beekeeping for Disabled Soldiers

"Vocational Rehabilitation Series" are issued by the U. S. Government for the benefit of disabled soldiers. Number 37 of this production is entitled "Beekeeping," contains 32 pages, a number of fine cuts, and indicates how cripples may succeed and **do succeed** in beekeeping. We cannot expect many of our disabled soldiers to take up beekeeping. It requires special tastes and aptitudes. No man who dislikes the work can succeed in keeping bees. But if the opportunity opens its door to a few, as it is sure to do through the help of these monographs, much good will result. Too many people slip away from the farm, expecting both more remuneration and more leisure in city pursuits. They soon find those prospects elusive and anything which will draw them back to the farm, or at least to the suburban plots, must prove a step of value to the country. Go back to the country, you city dwellers, and become producers as well as consumers.

# THE PASSING OF EUGENE SECOR

## A Tribute to a Beekeeper Who Was One of Iowa's Best Known and Most Beloved Sons, and Who Was Widely Recognized in Other Fields

By Frank C. Pellett

MANY hearts were saddened by the word of the death of Eugene Secor, of Forest City, Ia. Gored by an angry bull, on May 14, he died the same afternooon. It falls to the lot of few men to bind the hearts of so many in the ties of friendship as he did. Eugene Secor was one of the world's noblemen. He was not a specialist and did not rise to great eminence in any field, yet he was a leader in several. It was as a horticulturist and beekeeper that he was most widely known. He began contributing to the pages of the American Bee Journal nearly forty years ago. For many years he was prominent in the beekeeping field, having served as Vice President, and later as President of the North American Beekeepers' Association; the name was later changed to National. He was afterward treasurer and general manager for a period of six years. Mr. Secor was selected as the sole expert judge of the apiary department of the World's Columbian Exposition held at Chicago in 1892-93, and later served in the same capacity at the Omaha Exposition. For many years he judged the bee and honey exhibit at the Iowa State Fair.

It was during the years of Mr. Secor's greatest activity that the National Beekeepers' organization reached its greatest success, and undoubtedly his efforts contributed greatly to that end. It was as a writer of songs and poems that he, perhaps, became best known in the beekeeping field. Several of these songs were set to music by Dr. C. C. Miller and George W. York and sung at the beekeepers' conventions. "The Hum of the Bee in the Apple-Tree Bloom, "Buckwheat Cakes and Honey" and "The Beekeepers' Lullaby" were sung in hundreds of beekeepers' families a generation ago.

As a horticulturist our friend was known from one end of Iowa to the other. His home, "The Shelter," at Forest City, was surrounded by one of the finest collections of trees and shrubs in the middle west, and fortunate was the nature lover who found himself a guest in that home. Mr. Secor and daughter, Miss Nina, were able to make their guests feel very much at home, and delightful was the atmosphere of the place with its wealth of books and magazines, inside, and flowers out-of-doors.

With his bride Mr. Secor settled at "The Shelter" more than fifty years ago. All, excepting a few old trees there, have been planted by his own hands. Few trees and shrubs hardy under Northern Iowa conditions are missing from the collection, and hardy, herbaceous plants have not been overlooked. Plant breeding has been a fascinating pursuit for many years. Crossing the peony was a specialty which claimed his attention for some time past. I have nearly two dozen new varieties which were originated in the Secor gardens and they are a never-failing source of pleasure to me. The fact that they were the result of my friend's dreams and the parent plants were crossed by hand pollination, in an effort to work out the types which he desired, add greatly to their value to me. The collection at the "Shelter" included many hundreds, and they are a wonderful sight at blooming time.

There has probably not been a volume of the reports of the Iowa Horticultural Society that has not contained some contribution from the pen of Eugene Secor. He was at one time President of that organization, and for many years a director. At the time he first settled in Iowa the State was very new, and little was known of the varieties of fruits which would be suited to its special climate. He went through all the painful process of planting hundreds of varieties which could not stand the rigorous winters, or the hot, dry summers, and suffered the disappointment that always comes through losing a coveted variety. Most of the joy of life to the nature lover comes through the acquaintance with new varieties, and Eugene Secor tasted to the full the pleasure that comes to the man of scientific turn of mind from investigation of nature's secrets. In addition to his beekeeping and gardening activities, he was a breeder of shorthorn cattle, and for many years was President of the Farmers' Institute of his county, and also of the Winnebago Agricultural Society. Not only was he active in various lines of agriculture, but in business as well. As one of the founders of the City Bank, later the First National Bank of Forest City, he was closely connected with the commercial development of his town and county.

As a churchman he also rose to leadership, having been a delegate to the General Conference of the Methodist Church, to which denomination he belonged. He was also a member of the Board of Trustees of Cornell College, of Mt. Vernon, Ia., for several years. In politics he was also successful, having held several offices, including a seat in the House of Representatives, and also the position of postmaster of Forest City.

Our friend was a well-balanced man. Everything which interested him he investigated thoroughly, but he did not become warped in his judgment and narrow in his views through too close attention to one subject. His indomitable spirit was not crushed by adversity and his life offers a fine example for the young manhood of his community. Seven of his ten children died before he did and his wife preceded him in death by seven years. No matter how great his loss, or how deep his cause for anxiety, he was always genial and uncomplaining.

He continued his interest in bees until the end, but only with about

The Secor home at Forest City.

twenty colonies, since he was no longer equal to the physical exertion necessary to care for a large number

I count it a great privilege to have known Eugene Secor intimately and, in common with others, feel a sense of great personal loss in his going. His memory will be cherished in many breasts to the end of life, as the following poem, clipped from his home paper indicates was his greatest wish:

**If I Should Die Tonight**

An atom in the vast universe,
A bit of star dust in a field of light
Am I, nor would the world its course reverse
If I should die tonight.

The air is full of spirits of the past,
Spirits that once to the flesh were clear to sight;
Forgotten all, as I shall be at last
If I should die tonight.

But deeds, not men, are what alone survive,
Pure thoughts are angels clad in garments white.
Will words or deeds of mine remain alive
If I should die tonight?

Shall one kind act, one unremembered wrong,
One helpful word by me to cheer the right,
One phrase remain to speed the truth along
If I should die tonight?

Of all the ones I know who call me friend
Would one, just one, for life keep memory bright
With some sweet thought I spake while here, or penned,
If I should die tonight?

—Eugene Secor.

## Troubles With an Obstinate Queen

By G. C. Greiner

WHEN I first changed from the production of comb honey to that of extracted I knew from former experience that a clean, appetizing article could not be produced without the use of excluders. I had occasionally used an extractor for the purpose of reducing an overplus of honey from the brood-chamber. Some of the combs from which I intended to extract the honey contained, quite frequently, more or less brood in different stages of development, and it was next to impossible to extract the honey without disturbing the brood. Even with the slowest motion of the extractor that would throw out honey at all, quite a showing of different sized larvæ would be floating on the honey.

This decided the excluder question for me. The first dozen I used did not prove satisfactory. They were of earlier days' make and the bee-passages were much too large, giving the queens access to the supers in too many cases. Of course, I discarded them and instead tried the regular standard make of the present day, having .163 inch perforations. But these, too, did not entirely satisfy me; they excluded the queens all right, but I mistrusted they were honey excluders as well as queen excluders. After that I used excluders with .172-inch perforations. I could not find them in market, but had them made on my special order. I am not positively sure that I get more honey by their use, but they certainly are easier for the bees to pass through them, and they exclude queens as well as those finer ones with .163-inch perforations.

The reason why I have bri fly outlined my excluder experience in the

A corner of the Secor home grounds at Forest City. Mr. Secor had the finest collection of trees and shrubs in Iowa.

foregoing is because the excluder plays a prominent part in my queen story that follows.

The queen in question was the head of a colony I purchased early last spring. At the time I made my divisions, May 12, she was left with two combs of brood and the necessary filling out of the hive with division-boards and empty combs on the old stand. After that she built up her colony in the usual way, or perhaps a little better than the average. About June 15, a few days before the white clover flow came into full swing her hive with the rest of the same class received its extracting super with a .172-inch excluder.

In due time, when I was preparing to supply second supers to the needy hives, I found her super stocked up with brood from side to side and the queen on one of the combs, but the brood-chamber, as I afterwards found, was full of honey and pollen, and not a sign of any brood. This arrangement did not suit my fancy, and I decided to rearrange her ladyship's domicile according to my own notions.

A few days later I made the change. I removed all the combs from the brood-chamber and transferred the brood, queen excluded from the super into the former, at the same time filling the super with empty extracting combs and exchanging the coarse excluder for one of the finer type. On paper this operation looks easy, or even with hive and super empty, except combs, no particular hardships are encountered, but when both are crowded with bees it is anything but an agreeable job. I disposed of the crowded super easily enough by setting it, covered up, on an empty hivebody behind the hive, but when I took the combs from the brood-chamber, the bees seemed to lose all self-control. Smoke had no effect on them. They were running in all directions, over the frames, up and down the sides and ends of the hive, onto my hands and arms, over the edges of the hive, etc., and when all the frames were removed the hive-body, inside and out, was black with bees. And with such general uproar the operator has no inkling where the queen may be. To save her from possible harm all handling of the colony must be done very cautiously.

Transferring the brood from the super to the brood-chamber was comparatively an easy task; the bees had quieted down to almost normal and objected very little to the handling, and as the queen was found on one of the combs also, all my anxiety in her behalf was removed.

When I examined this hive the next time, a week or ten days later, I again found eggs and young brood in some of the combs above the excluder, and the queen presiding over the newly-established household. She did not remain there very long. I shook her on the alighting board and saw her safely enter her proper home. The brood, which she had started above, I scattered among solid combs of honey, expecting that that would settle all disputes in regard to her home claims for all time to come.

About two weeks later, when the dark honey flow was well under way and other colonies needed more storage room, I expected that this queen (or her colony) would need another super, too; but to my surprise and annoyance found her super to be a well-stocked-up brood-chamber a third time. Taking out the comb on which the queen was found I gave it an unceremonious shake in front of the home, which she had deserted twice before. I have not seen that queen nor opened her hive since.

As it was getting late in the season and the prospect of getting any surplus honey from the colony extremely uncertain, I left them to arrange and manage their home affairs to suit their own fancy. Whether the queen remained in the brood-chamber after the third transfer or again passed through the excluder I did not find out. It being so nearly time for the adjustment of winter cases and winter packing, I built a two-story case around this now two-story hive and provided substantial packing the same as for all single-hive colonies.

The contrariness of this queen, with perhaps a little undue persistency on my part added, cost me, roughly estimated, about 100 pounds of surplus honey last summer. All in all, I extracted from this colony, mainly from the brood-chamber, about 40 pounds, while the rest of my yard averaged over 200 pounds, of which nearly one-third was comb honey. Had I been a little more indulgent with this queen and granted her the privilege of using that super for her brood-chamber, as she seemed to prefer it, one or two supers of surplus honey from this colony would have been almost a certainty. Placing a second and third super with another excluder on the first one would undoubtedly have produced the desired result.

La Salle, N. Y.

## To Get Rid of Foulbrood

By Lieut. Alin Caillas
Ingenieur Agricole, Chimiste de la Societe Centrale d'Apiculture.
Etat-Major de la Division, Secteur Postal 41 (France.)

ALL apiarists know, at least in name, this illness, which is common in several parts of France. Its ravages are most important. I know of entire regions, that are privileged ones as regards climate and flowers, but where beekeeping has become practically impossible, on account of the extension and propagation of this awful plague.

Plague is no exaggerated word for it; foulbrood may be compared, keeping in proper limits, with Indian plague, cholera, Spanish influenza or, —to leave out human diseases—with pebrine and muscardine that threatened, some fifty years ago, to destroy French silk-husbandry. But Pasteur was on the lookout, and thanks to his learned workings and patient researches, a remedy was found.

Our apiarists have, generally speaking, but small information, vague and imperfect data on this question. Things do not stand so abroad. Cheshire, in the year 1885, Maasen, 1907, Dr. White, of Washington, Professor Zander, 1910, discovered and studied the **bacillus alvei,** the **bacillus larvæ,** the **streptococcus apis,** the three of which bring about, under different forms, the illness commonly called "foulbrood."

During a recent furlough which I spent on the Cote d'Azur, in that enchanted seaside country all strewed with flowers, where carnations, roses, mimosas give the land a matchless ornament, I was fortunate enough to renew old acquaintance with one apiarist whose name is well-known to all readers of this journal—Mr. Ph. J. Baldensperger.

Mr. Baldensperger may be called an apostle. A long life of learned workings, all devoted to the study of bees, makes him an uncontested master in the matter. He has traveled in nearly all parts of the world, speaks and writes English, Italian, German and Arabic as well as French; so that he certainly is the best qualified apiarist of our times and the most learned and most enthusiastic one I know of.

Moreover, his enthusiasm is catching. During our walks in the environs of Nice, our conversation often came to the subject of foulbrood. Mr. Baldensperger knows it well, for he had to suffer damages through it. He has noticed its effects, but, in spite of his thorough science of apiarist, it remained for him without any remedy.

Yet, in the course of his long researches, he had the good fortune of coming into relations, at the Societe Naturaliste de Nice, with a learned and distinguished biologist, Mr. A. Prudhomme, of the Paris and Strasburg Universities, a former scholar of the Institute Pasteur.

For such a learned a gentleman as Mr. Prudhomme, the question of foulbrood could not fail to be an attaching one. Quickly, he read and studied all that had been written and done about that question, so as to well master it. Then he applied modern methods to cultivating the three microbes which we have named above, and he succeeded, after patient researches, in cultivating, isolating and fixing them.

The microbes of foulbrood develop in the intestines of the larva; they may be compared in all respects to those of Eberth (typhoid fever.) Now, typhoid fever can be treated in accordance with two methods—ordinary vaccination, or entero-vaccination, i. e. vaccination absorbed through the digestive tube.

Mr. Prudhomme succeeded in bringing about a polyvalent entero-vaccination, i. e. virus that can be opposed to the infection brought about by the several bacterias of foulbrood. I beg leave to quote here his own words:

"The cultivation grounds to be chosen were a most serious difficulty, but the previous workings of the above-named authors had prepared the way, and so I was able to cultivate on choice grounds for every one of them the various bacterias in question, including the bacillus larvæ, the cultivation of which had remained practically impossible heretofore. It was then necessary to stabilize these cultures. This has been carried through, too, and already for months I have been able to bring out a polyvalent virus that is satisfactory in every way. The virus, enclosed in a glass ampulla, should be mixed with a kilogramme of honey or of sugar syrup, and this should be given as food to the polluted beehive. The contaminated larvæ are lost anyway, but the infection ceases, the new larvæ being fed on this mixture do not catch the disease, the laying of the queen does not stop, the active life of the swarm is carried on and, as the population keeps on a sufficient level, the plundering of the hive is avoided. After a fairly long time, generally over one month, the effects of the illness have disappeared."

Mr. Prudhomme's experiences are to be considered as quite conclusive. But, according to the author's wish, these experiments should be repeated as often as possible, not only in the several regions of France where foulbrood has spread itself, but also in foreign countries.

Mr. Prudhomme is at the disposal of all apiarists to forward them, free of cost, the virus he has brought out, the making of which he keeps a secret. All necessary information will be given. In return, apiarists are requested to kindly report their observations and the results ascertained.

By repeating such tests, by renewing them in the most varied situations and circumstances, we may hope, with the help of all interested, to succeed in wiping out the dreadful plague that threatens to annihilate forever a most important source of our national riches.

Virus can be obtained from Mr. Prudhomme, Chimiste Biologiste, 1 Rue Cotta, Nice (Alpes-Maritimes), France.

(This is very interesting. But in the case of what is called in this country "American foulbrood" or "bacillus larvæ," it is out of the question to bring about a permanent cure without doing away with the contaminated combs, for the reason that the dead larvæ are fastened to the lower cell-wall of the cells in such fashion that the bees can rarely remove them. As to the other disease, which Dr. White calls "bacillus pluton," and which we have reasons to believe is the same as that described by Cheshire under the name of "bacillus alvei," the case is different, for the bees easily remove the dead brood.

The reappearance of bacillus pluton in an apiary, after the disease has been considered cured, might be prevented by a trial of the method above given by our learned friend, Lieutenant Caillas, provided the virus be not too expensive. In this country, profitable beekeeping is carried on in large apiaries, and any method, to be successful, must admit of the treatment of all the colonies in an apiary. That is why so few of our experienced apiarists are willing to depend upon any drug system. But it is well proven that the bees need never be killed to do away with the disease; neither is it necessary to burn anything but the combs actually containing the dead brood, and that only in the case of "bacillus larvæ."

We are just beginning to learn how to treat the different bee diseases, and it behooves us to listen to all suggestions and to give trial to all the plausible methods.)—Editor.

## Smoke Introduction

By Major Shallard

I AM always at a loss to account for anyone failing in queen introduction by the smoke method. I first used this over a quarter of a century ago. I have used no other since, never having any need to. I was rather amused at its discovery (?) a few years ago by Mr. Arthur Miller. Every now and again someone reports a failure by the method, and that is what puzzles me. Then rather elaborate instructions are given on the subject. The queen must be run in under certain conditions and so many puffs of smoke must be given, etc. One of the editorials of a bee journal said that to insure success it was imperative that the hive be free from cracks and tight enough to hold the smoke.

I find none of these precautions necessary. I just flop the queen in any old way and apply the smoke, and introduction has become such a simple matter with me that I feel that I could drop a queen into a hive and throw my hat at it (at the hive, not the queen) and it would be safe (the queen, not the hive).

I do not make any claim to have any special skill in queen introduction. Rather do I contend that no skill is needed. The whole matter is summed up in the word "demoralization."

The bees "dunno where they are" and in that condition anything can be done with bees, or anything else. You get an unbroken colt out of the bush; put a halter on him, as soon as he is quiet enough to let you; tie his head to his tail and then frighten him, and he will turn round and round like a top until he gets giddy and does not know what he is doing. Get the harness on him quickly and you can drive him like an old stager, simply because he is demoralized. Do not make the mistake of keeping him in the harness too long or he will get his senses back and kick the stuffing out of the vehicle. It is just the same with the bees. Get them befuddled and they do not know one queen from another, and, in fact, are not sure whether they previously had another queen at all. On one occasion I was introducing a queen into a very leaky three-story hive and I heard a strong hum over my head. I found the bees were pouring out of the top story and lighting upon a bough. They were dark scallawag bees, and while I was looking I saw the new queen settle among them. She, being bright yellow, was very conspicuous. I put them back and as the genial Dr. Miller would say, "they lived happy ever after." Some claim that the method will not act with two-story hives and three-story ones are impossible. This is all tommy nonsense. It will act with any hives of any size, any make and almost any leakiness. It is simply a matter of giving enough smoke. A big hive obviously needs more smoke than a small one and a leaky one more still. My method is simplicity itself, I kill the old queen. Have a piece of flat wood large enough to close the entrance. I put the hive together and just before pulling the cover on I drop the new queen down between the combs at the top. I then put the top on, close the entrance with the board, all but half an inch. I puff **cool** smoke into the hive until the bees roar, and they fight to get out at the entrance. After they are thoroughly upset from top to bottom of the hive I cease smoking and close the entrance altogether. After three to five minutes I open the entrance slightly, and if they rush out I close it and try again in another couple of minutes, when they will have settled down and very few, if any, will rush out. Then open the entrance full and the trick is done. It is as easy as falling off a log, as sure as death.

Australia.

## "Honey Yellow"

By Allen Latham

IF one hundred people, acquainted with honey but otherwise chosen hap-hazard, were asked, "What is the natural color of honey?" what would be the composite answer? This question is raised for a two-fold reason; first, because better sales of honey would result on account of greater confidence of the buying public were there greater uniformity in the color of bottled honeys. If the darker honeys were diverted to other uses than bottling and if the colorless honeys were blended with the ambers for the bottling trade, the result, I believe, would be greatly beneficial to the honey trade. In fact, some of us producers are already doing that very thing, and, in the East at least, blended honeys will put other kinds out of the market.

The second reason is, perhaps, of less importance, but has importance from an educational standpoint. This second of the two reasons that have led me to raise the question under discussion is the injustice so often done in judging honey exhibits at fairs and food exhibitions. It has come under the observation of the writer that few judges can get away from the notion that the less color a honey has, the better the honey. Too many times have I seen first premium awarded to a honey almost without color, while other honeys in the contest, possessing some color, surpassed the prize honey in body and clarity.

Should honey be free from color? Last fall the writer acted as judge at a certain fair. Under the exhibit of light honey were two close competitors for first place. One of these was practically colorless, while the other was a light amber. Had the second had less color, had it been golden in tint, there would have been no question about the placing of the award. But the second was almost too dark in shade, while on the other hand, the first was too pale. The second, though rather strongly colored, was awarded first prize on the ground that it possessed a better flavor and was superior in clarity. Several persons present questioned the judges' decision and asked whether a mistake had not been made. When the matter was explained to them they saw the justice of the award.

Now, for a fact, only a few honeys are colorless, or what might be termed colorless. Basswood, alfalfa, clethra, goldenrod, aster and alsike clover are practically the only honeys seen in the East that could be termed colorless, and often many, if not all of these, possess considerable color. California produces some almost colorless honey, and there are plants in the South that produce water-white honey. Against these can be named a host of blossoms that produce honeys that are tinted with yellow or red. Some of the noblest honeys of all are thus tinted. Raspberry, unmatched for eating, is tinted. Clover, by many considered the prime honey of all honeys, has a yellowish cast. Sumac produces a honey which has a beautiful golden cast, and connoisseurs, the country over, pronounce it the best of all. Apple-bloom honey, in the opinion of the writer the very nectar of the gods, is distinctly golden. Orange-bloom honey, much like that from apple blossoms, captures the palate of many honey lovers. When it comes right down to enjoyment of eating honeys, there are few colorless honeys that have that property termed tastes-like-more to the same extent that other honeys which possess some color must be credited with.

The buying public, though largely possessed with the idea that the best food is white—white flour, white sugar, white rice, cream of wheat, white corn—will pick honey with a tint rather than that which is colorless. The impression has long been present that honey is naturally yellow, and so we often run across such expressions in printed books as "honey color," "honey yellow," "golden honey," etc., all of which expressions either in themselves, or by the context, convey the impression that, the world over, honey is thought of as of a yellowish or golden color.

If this is the general impression, should a colorless honey rank higher than a golden honey? I for one, should say no; and to revert to the question submitted to a hundred honey consumers, I think the answer from the vast majority would be "yellow or straw color."

The Century Dictionary defines a pure honey as "of a whitish color, tinged with yellow." Evidently the authors of that book are not acacquainted with the chocolate honey of buckwheat, the red honey from huckleberry, the water-white from clethra. But that definition confirms my contention that honey is usually thought of as having some color, and that color yellow.

It is not wise to work against a strongly ingrained public opinion. If people in general think of honey as yellowish or golden, then we honey-sellers should try to attain that color in our bottled goods. By doing so we shall help to increase the sale of honey.

Norwichtown, Conn.

Mr. Barbeau preparing queen-cells by his new method.

## The Barbeau System of Queen Rearing

WE have received the following letter and accompanying cuts from Mr. E. Barbeau, of St. Eustache, Quebec:

The enclosed photos illustrate the queen-rearing system which I have invented. It is exceedingly easy to operate. It consists of:

One cylindric punch.

One pusher.

Waxed aluminum capsule tubes

Royal cages.

The cylindric punch is used to cut, out of the comb, one cell containing a larva one day old, to have the latter developed in a queen-cell.

In order to use it with success, it is advisable to rub a little vaseline on the inside and outside of this punch, so that it will not stick to the comb.

The waxed aluminum capsule tubes are used to receive the cells from the punch after they are cut; you simply push the cell from the punch into the capsule tube, by the use of the pusher.

It is not necessary to put any royal jelly in the cells to induce the workers to start queen-cells out of them, when conditions are right. They do it of their own accord.

The royal cages are used to keep the queens prisoners after they are hatched.

Nothing is easier than these operations. After preparing 30 or 40 capsules or more, you screw them into a comb which you place in a colony which has been made ready for queen rearing.

I trust the above information is sufficient to make anyone understand my system.

## Swarm Impulse

By Arthur C. Miller

TO write something which receives commendation from Dr. Miller is indeed gratifying, but so to express one's self that part of what one says confuses him is most regrettable.

Yes, Doctor, I did mean that there is no more danger of having swarming impulse inherited through swarming cells than through cells reared in any other way from the same colony. I believe that biologists are now pretty well agreed that acquired characteristics are not transmitted through inheritance, and it is absurd to believe that food from swarming bees could impart the swarming impulse to queens they reared and fed. We would as soon expect a baby brought up on cow's milk to moo.

I go farther, and question how far it is true that some varieties or strains are much given to swarming. I know that such is common belief, but I think external factors are largely instrumental in exciting the swarm impulse. But some strains may be more susceptible to external influences.

Reproduction by division (swarming) is doubtless an inherited trait of bees, but that an increased tendency to so divide exists and is inherited I do not believe. As an example, the Carniolans are said to be great swarmers. But here we have an Alpine bee, taken from high altitudes, a bee whose constitution is adjusted to a rarified and a relatively cool atmosphere, and we subject it to our lower altitudes and hotter climate. In its native home it has not a reputation for excessive swarming. Is not its swarming habit here due to its reaction to external conditions? What would be the result if we should take some of the swarming Carniolans of our low lands and put them well up in our mountain regions? ( I venture to assert that the excessive swarming would disappear.

It is not partucularly difficult to start the swarming impulse in any colony of normally well-behaved bees by sundry manipulations, such as adding drones and drone-brood and an excess of young nursing bees.

As to leaving a ripe and just-started cell, I do that to guard against hopeless queenlessness, and it is done when a swarm is returned without the old queen, or when the old queen is removed to prevent swarming. I have found that the very young cell is generally allowed to develop until the queen from the ripe cell is mated. If she is lost in her wedding flight the colony has something to take her place. Not so with two cells of nearly the same age, for the second one is pretty sure to be destroyed soon after the first hatches. All of my yards are at a considerable distance from home and are not visited often, so some plan seemed necessary to guard against disaster from queen loss.

I am aware that such a colony may swarm when the first virgin flies to mate, but in this locality, with our slow honeyflows, they seldom do. But swarming is rare among my bees, so perhaps my experience is not great enough to be a fair criterion of the plan.

The Barbeau queen cage.

Preparing the cupule

Providence, R. I.

Glad we are agreed on your first proposition. If queen-cells are to be used from a certain colony, I would make no choice between swarming-cells and those reared under the hand of an expert at some other than swarming time. But if the matter is in the hands of an inexperienced beginner, I would much prefer the swarming-cells.

You believe that under certain conditions Carniolans will not swarm more than others. Well, that doesn't particularly interest me; if they swarm under my conditions, it's immaterial to me what they do under other conditions. The thing that interests me is that under my conditions there is a greater tendency to swarming in Carniolans than in others, and it seems to me they get that tendency from their folks. If you have some other name than heredity for it, well and good.

As to that matter of leaving two queen-cells, there seems to be something of a tangle, and I suspect if we were face to face we would be likely to be found of the same mind. In November, 1915, American Bee Journal, page 379, you say: "Usually I then cut out or destroy all but two cells, leaving two of as nearly the same age as possible." In your present article you speak of "leaving a ripe and a just-started cell." Must be some muddle somewhere.

Going back to my article on page 55, February Journal, I quoted you as saying: "When two cells of nearly the same age are left, one is destroyed soon after the first hatches, but not so when one cell is very young, or just started." And then I said: "I've always supposed it was just the other way around." I can now see that our misunderstanding may have arisen from the fact that I had in mind swarming and you didn't. For if two cells of nearly the same age are left, I should not expect one to be destroyed soon after the first hatches, but to be cherished and allowed to reign after the departure of the first with a swarm. If there is to be no swarming, then I would expect that the older the second cell, the sooner it would be destroyed.

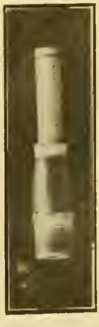
C. C. MILLER.

## Rearing Queens Over Queenright Colonies

By C. C. Miller

IF a colony has its queen taken away during the working season, the bees will start queen-cells upon some of the young worker-brood present, and proceed to rear a queen. Entire removal of the queen is not absolutely necessary to give the bees a feeling of queenlessness, and to make them act accordingly. It is well known that if all but one or two of the frames of brood of a colony be raised from the brood-chamber and put in a second story, there being an excluder between the two stories with the queen in the lower story, the bees will be pretty certain to start queen-cells in the upper story.

It is perhaps quite commonly thought that this is because the queen cannot get into the upper story. It is, however, a matter of "does not" rather than "cannot." Instead of an excluder between the two stories, let a sheet of heavy cotton be placed over the frames of the lower story, the sheet, being small enough for the bees to pass back and forth at the sides or corners. The queen can pass up and down as well as the bees, but she **does not,** and so



The Barbeau system requires very simple tools.

long as she does not the bees will start cells in the upper story as promptly as if the queen-excluder were present.

The distance of isolated brood from the queen is a matter of importance. The first case on record of a queen being reared over a laying queen of which I have any knowledge occurred in this wise: I had a number of empty brood-combs that I wanted to protect from the moth, and I piled four stories of them over a medium colony. Fearing that the bees might not reach the combs farthest from the brood-nest, I put one or two frames of brood in the upper story. Later on, upon opening the hive, I was greatly surprised to find in the upper story a nice little brood-nest and a young queen laying. There was an opening at top from which the young queen could take her wedding flight, and she had evidently not invaded the domains of the reigning queen below. In this case there was no excluder, and nothing to prevent free passage from top to bottom; so it was the mere matter of distance that gave the bees the feeling of queenlessness.

Since then I have had a number of cases in which the same thing occurred without any intention on my part. In a number of cases I have also designedly put brood above, in order to rear a queen, but failed every time. I don't know why. I think others have had better success.

There seems to be a difference as to the degree of intensity of the feeling of queenlessness on the part of the bees, perhaps dependent on the degree of isolation. The closer the isolated brood is to the queen, or the more open the communication, the less the feeling of queenlessness. Perhaps, also, there may be a difference in the bees themselves. A colony with a young queen is not so likely as one with an old queen to start cells over an excluder. Indeed, one is not always entirely sure that cells will be started, whether the queen be old or young. But practically always one may be sure that if cells already started are given over an excluder, with a laying queen below, such cells will be respected and treated just the same as if they had started the cells themselves. They may not feel queenless enough to start cells, but they do feel queenless enough to take care of them and continue them if cells are already started.

In all of this the excluder in mind is the common zinc queen-excluder. The result may be a little different with the wire excluder, on account of its greater openness. In the American Bee Journal for December, 1918, page 412, W. J. Sheppard says: "It was found that when the new queen-excluder was used, the bees, as a rule, would not build queen-cells, except when a shallow super was put above the first story, and a second wire excluder over that * * * But if an ordinary zinc excluder was used instead of a wire one, there was no difficulty in getting the bees to build queen-cells."

We speak generally of rearing a queen over an excluder. It may be under, or it may be at one side. I think, however, that bees over an excluder feel more keenly their queenlessness than when under or at one side.

When, then, we desire to rear queens in a colony with a laying queen, we may feel about sure that cells will be started if the story containing the brood be separated from the story containing the queen by an extracting super and an excluder; that they will generally be started if a zinc excluder is used without the extracting super; and they will generally not be started when a wire-excluder alone is used. Also, that if cells already started are given, we may feel quite sure they will be continued if a zinc excluder be used. With a wire-excluder I'm not sure whether we can count on their being continued unless an extracting-super also intervene. Marengo, Ill.

## A Successful Queen Breeder

By E. G. Carr

MANY types of persons keep bees, and when a queen-breeder is able for twenty-five years to satisfy, with hardly an exception, these various tastes, one wonders how it is done. Such a queen-breeder is Lloyd H. Robey, of Worthington, West Virginia.

Mr. Robey was born in Lumberport, not far from his present home, in September, 1850. He was left fatherless in early childhood, and at the age of 12 started to learn the shoemaker's trade. He became expert, and so mastered the tools of the trade that, to use his own words, "If I were going to build a house I would use the shoemaker's tools." He uses a crooked sewing awl for a grafting tool.

Bees were taken up as a side line with the hope that they might prove profitable in honey production, as too close confinement at the shoe-bench had brought on considerable digestive trouble. Finding the nectar supply insufficient to make honey production profitable, Mr. Robey took up queen-rearing, and after having mastered the intricacies of the business, began, in 1891, to supply queens to the trade. From that time his business has grown until the output the last few seasons has been about 3,000 queens.

Mr. Robey uses the hand-made "Doolittle" cell-cup and grafts into them the smallest larvæ which can be handled, after priming the cups with "royal jelly." They are then given to a colony which has been prepared for cell-starting by removing it from its stand and in its stead placing a hive containing four combs of honey and pollen and one frame of brood. The bees from about four combs from the removed colony are shaken into the prepared hive and in five hours, or about noon, fifteen grafted cells are given, after the frame of brood has been removed. The next morning the started cells are put in the upper story of a strong colony for completion. The cell-starting colony is then restored to its former place and condition and in two days the process is repeated.

Frames for the mating hive are of such size that three will fit into a Langstroth size frame. Two or three are used for a nucleus. Twin mating hives are used, as are also some holding four nuclei.

Formerly these were stocked by fitting them into the "L" frames and placing in a colony. Later, bodies were made of such size that they would carry twelve of the small frames crosswise, two such bodies being used as a colony.

As a rule, ripe cells are given nuclei.

Late in the season, when the tendency is to feed the cells poorly, sometimes the larvæ are removed from the cups, where they have been fed for two days and replaced with newly-hatched larvæ, at the same time shaving down the cups with a hot, sharp knife. This insures well-fed larvæ.

Mr. Robey imports breeding queens every two years. However, before these are used for breeding they are tested, usually for two years, to guard against introducing any undesirable trait.

Drone mothers, as well as queen mothers, have always been selected by Mr. Robey. It is noted that this point is now receiving much more attention than formerly.

Mr. Robey's experience has been that only the first batch of supersedure cells have proven satisfactory. He has often found the returning mated queen accepted in a queenless nucleus.

Mr. Robey shipped queens to F. W. L. Sladen, in England, twenty years ago. He successfully sent queens to British Guiana, using a 12-hole cage and about one-half pint of bees. The queen was on the road twenty days.

For a number of years orders for the entire output of the apiary were booked by the first of May. In his dealings with the public Mr. Robey has assumed the same attitude as the Pullman porters, which is: "The customer is always right." It is possible he has satisfied some unjust claims, still he believes it has paid in advertising.

Because of the recent sugar shortage and the fact that he annually used 6,000 pounds, Mr. Robey has abandoned raising queens for the trade.

New Egypt, N. J.

## The Baby Nucleus

By E. F. Atwater

WHEN the writer was attending high school, nearly twenty years ago, and keeping some bees, and thinking more about the bees than the school, it was his privilege to spend a few days with Mr. Thos. Chantry, at Meckling, S. D., and there saw in use a super divided into four compartments, something like the old Heddon super, in which separators could not be used, and in each compartment were two or more frames of 4¼ sections, and a nice, prosperous little nucleus in each compartment.

Mr. Chantry was very successful with these little nuclei, and succeeded in mating three or four queens, with the same quantity of bees as were usually used in a standard two-frame nucleus.

A year or two later, the writer came to Idaho to engage in beekeeping as a business, and one of the first moves was to establish a number of such nuclei, and these nuclei were seen in operation by Mr. E. R. Root when he visited here in 1901.

Results here, with our cool nights, were unsatisfactory, but with the publication of articles by Swarthmore, Laws, Bankston and others, a careful study was made of the entire matter, and every modification tested, as to size, as to age of bees, etc., and in 1904 a lot of nuclei were in use, folding like the Laws and Bankston nuclei, and containing one 4x5 section, and operated on the same plan of temporary stocking with bees, to be broken up as soon as the queen was found laying and later the same boxes were tested, with one section as before, and an old tough comb, with the cells removed on one side, and waxed in one on the little trays that constitute the hive-sides, giving the bees a chance to cluster between two comb surfaces.

These too, were unsatisfactory. Next, we tried the modified Swarthmore boxes, with two combs, about 4¼x5⅝, and these, too, were finally discarded. Then we built 50 nuclei on the Laws folding plan, with one regular shallow extracting comb, and these were a little better. Later these were changed into three shallow combs to each nucleus, but they were too long for the most economical use of a half-pint to pint of bees, so, as a last test of small nuclei, we adopted the regular standard frame, 5⅝x8, which were originally designed to be fitted three into a standard Langstroth frame, to get frames filled with brood and honey, for stocking nuclei.

D. M. Bryant, of Cliffview, Virginia, in his rosary.

This size proved to mate just about as many queens, per nucleus, as the larger Langstroth frame nuclei, and, where economy of bees is most important, is the best all-round size of nucleus frame.

However, we found that for the practical producer of honey, it is much better to use a nucleus that will hold at least 4 frames, as, if queens are mated, and not needed at once, turn the excluder over the entrance, so they will not swarm out, and given a frame or two, with starters only, when the little nucleus will work as contentedly as a full colony, and build down perfect worker combs. If all beekeepers contemplating the adoption of the small nuclei would adopt those, using the standard baby nuclei frames 5⅝x8, exchange of fine queens, and of select brood for queen-rearing, would be facilitated, as a little nucleus containing one frame of this size can be sent for a very small charge. For some years past the writer has dispensed with the cumbersome plan of fitting the baby nucleus frames into Langstroth frames to secure brood and honey in them, and was the first to devise and publish the plan of fitting a division across a 10-frame shallow super, as illustrated and described on page 92 of the American Bee Journal, 1917, without credit to the inventor.

Such supers are used as stock hives, and one or more colonies are at all times kept in them, from which a frame of brood or honey can be taken at any time.

When we wish to stock up a lot of baby nuclei, we put supers of such frames, filled with comb, on several strong colonies about the yard, give them a quart of feed about every hour, and by night the little combs are nicely stocked with honey, just right for making up nuclei.

Now, as to the reasons why the extremely small nuclei failed here. After all these years I am not sure of my reason, except that the boxes are so small as not to be adapted to the instincts of the bees, and hundreds, if not thousands, of the fine cells and virgins have been lost by these tests, most of which would have mated and been of value if a larger size had been used.

Meridian, Idaho.

## Marketing Honey

By J. E. Crane

NOW, that there is a lull in the demand for extracted honey, is a good time to discuss the best way to dispose of our next crop. For those who have little time to market their crop perhaps it is just as well to sell to any buyer who is willing to pay a fair price for it, or turn it over to a reliable commission merchant who makes a specialty of selling honey. But for those who have the time and are willing to put in the work there are better ways for selling both comb and extracted honey. I know of one beekeeper who, although he runs a large farm, with dairy and several hundred hens, has found time to peddle out a large part of his honey, thereby saving shipping cases and freight bills, as well as commissions. Another way that will doubtless appeal to a large number of beekeepers that live near large towns is to put their honey in neat and attractive packages and place in grocery stores for the retail trade. A friend disposes of all of his honey in this way. If the demand is not equal to his supply he has placed a one-comb hive of bees in the store window to attract customers. The amount of honey that can be sold in this way is surprising. Another way, and perhaps the best way where one has a suitable location, is to retail from your own home to those who call for it. The location should be on a much traveled road. Of course, a sign should be hung up in plain sight of the highway, "Honey for Sale." But, better than this is to have the yard of bees set where it is easily seen by those passing. A good friend of mine, who has sold the past season his entire crop of some 10,000 pounds in this way, says his sales have nearly doubled since he cut away the trees between his yard and the road.

This method not only saves railroad freight bills, commissions and shipping cases and crates, but to a considerable extent containers also, for his customers who are acquainted bring their pails to be filled, but to those who do not he feels free to charge for a pail that he fills for them. He takes his surplus almost wholly in shallow extracting frames, extracting a part and cutting out the nicest to sell as chunk honey. He sells the comb and extracted honey at the same price, and his dark buckwheat, when he has it, as some prefer it to white honey.

Another method that has some merit is to put your honey in suitable packages for the retail trade and then travel from town to town and take orders and ship direct to the retail merchants; but the difficulty is that unless you can make large sales rapidly, which is not always easy to do, the expense of traveling and hotel bills will take all the profit over what you could have got from the wholesale buyer or dealer. Still another way is to put your honey in the most desirable form and let the wholesale grocery house, who has a large number of agents on the road, take orders and send them to you to ship direct to the retail merchant. If this method were very generally followed it would seem as though every retail store in the country might in a few years be supplied with honey. Of course, suitable literature and advertising matter should be supplied to those taking orders.

But how shall extracted honey be put up for the retail trade? This will depend much on the section into which it is shipped and those who consume it. A large demand is coming from restaurants, hotels and dining cars for individual packages holding from two and a half to three ounces. There is likely to be a large trade in this line in the near future if sufficient effort is made to develop it. Then there are those that want more than enough for a meal for one person, and a five-ounce, an eight-ounce and a fifteen-ounce package are needed, that the whole family may have not only a taste, but a full meal of it, with their bread. We put up honey in three sizes of glass, and three sizes of fiber, that can be sold for a little less than a glass. Then we have quarts in tin, and half gallons and gallons, as well as five-gallon cans, and have calls for honey packed in all of them.

By the way, one of the best methods of advertising is to put up under your trademark only a nice grade of table honey. There seems to be a feeling in many places that honey should be slightly amber and it may often be advisable to mix a small per cent of good-flavored amber with a very white honey to reduce the color a trifle, but care should be taken that it is not carried too far, and injure the quality and reputation of the bottler. The reputation of a beekeeper or a bottler is of much greater value than all that can be gained by reducing the standard of your goods, when once you have a reputation established.

What shall we say of comb honey? With sections costing nearly a cent a piece, and a piece of foundation large enough to nearly fill them, the best part of another cent; then with a carton to cover the comb another cent is required. But this is not the end, for we must have shipping cases that add another cent to each section, and a crate in which to ship our cases costing not less than half a cent more per section. The greater amount of work required to produce the comb honey, and greater amount of labor to pack it, will make it quite necessary that we secure a much higher price for it than for extracted honey to make it pay. The law that compels us to weigh individual sections and place the net weight on each section or carton, adds very much to the expense of packing. But there are some advantages in this, as it makes it possible to pack all the sections of the same weight in a given case. It is very easy to see that the retail grocer will prefer all his combs of the same weight and be willing to pay a little more when so packed. Again, there are some who want every section to look heavy and will pay more for fourteen or fifteen-ounce net sections than for lighter ones, while others are not particular, and some retailers are even willing to pay more per pound for the light sections. Plain sections weighing eleven ounces net look very well if no heavy ones are in the same case to compare them with, and sell very well. With the present craze for producing extracted honey, I believe the price of section honey is going to rule high for some time to come, and pay well those who are willing to produce, pack and market it with care.

## DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
**DR. C. C. MILLER, MARENGO, ILL.**
**He does NOT answer bee-keeping questions by mail.**

### Outdoor Wintering

A few days ago I talked with a beeman and he told me he never packed his bees, but just left them on the stands as they are in the summer. He argued that when bees are kept too warm in winter they use up their stores and are without in the spring before time to gather more. He says his bees are doing fine. What do you think of this? ILLINOIS.

ANSWER.—I don't know how far south you are, but there are good authorities who say that anywhere in Illinois the bees are better off for protection. A strong colony may winter without it, but that doesn't prove that the colony might not do better still with it.

### Queens—Italians, Etc.

1. If the queen should be killed on her mating trip would the colony likely be queenless, since this queen very likely destroyed all the other queens before starting forth?

2. If I have no bees in my apiary except pure Italians and there are no neighbors' bees within one mile, is it not certain that my queens will become purely mated?

3. Have you had experience with the various strains of Italians, as three-banded, leather-colored and goldens? If so, which would you advise for gentleness and industry? ILLINOIS.

ANSWERS.—1. If swarm should issue, leaving in the hive no queen or queen-cell, and no young brood, the death of the queen would be the doom of the colony. But you are not at all warranted in saying "since this queen very likely destroyed all the other queens before starting forth." That's just what she is never allowed to do. When a prime swarm issues, young queens are always left in their cells, and plenty of young brood from which young queens may be reared. In the case of an afterswarm there is a virgin queen, and if the workers don't allow her to destroy all her royal sisters in their cradles she issues with a swarm. If they allow her to kill them, there will be no swarm. In brief, there is never a swarm without a potential successor to the queen.

2. Not half of them are likely to be purely mated.

3. You seem to class three-banded as separate from leather-colored. Pure leather-colored Italians are three-banded, and three-banded may or may not be leather-colored. As a rule I should prefer leather-colored three-banded Italians to any others.

### Propolis, Supers, Etc.

1. What is it that bees use to stick so tight everything in the hive?

2. When a swarm comes out it is with the old queen. Is it old bees that come out, or is it young bees that come out with the old queen?

3. Is it a good plan to put on hive supers with full sheet foundation soon after new swarm is put in hive?

4. Is it much trouble to use bee escapes?, and will all the bees go down from super into brood chambers, as it is claimed they do?

5. How much is saved in the way of comb-foundation by extracting?

6. If bees were put in a goods box that would hold 10 bushels, would they swarm before they filled the box? and would there be more than one queen in it about the time it was full?

7. Is the honey in brood-chamber over super full of honey enough for the bees in a colony to winter on?

8. Do the bees in the super winter in the super, or do they all go into brood-chamber to winter? TEXAS.

ANSWERS.—1. It is propolis, or bee-glue, mostly gathered from trees, but also from old hives in which there are no bees.

2. The bees of a swarm are of all ages, from the oldest to those that are barely able to fly.

3. Unless an excluder is used, no super should be given until the queen has made a start at laying in the brood-chamber, lest the queen begin laying in the super.

4. It is no great trouble to use them, but you cannot count on their always getting out all the bees promptly. Yet those who use them are quite generally satisfied with them.

5. Nothing the first year; but after the first year you save all the foundation used in sections.

6. Occasionally they might swarm, but they would have a new queen every two to four years, whether they swarmed or not.

7. Yes, and there might be enough without the super.

8 Generally they winter in the brood-chamber, but some, or even all, may be in the super.

### Queen-Cells

On page 189, in the book "One Thousand Answers to Bee Questions, "How to Rear Queens on a Small Scale: "When the colony swarms, hive the swarm on a new stand, leaving the mother colony strong. About a week after the issue of the swarm go to the hive each evening and listen for the piping of the young queen. After you hear her, go the next morning and cut out all the cells." Now, it stops before it tells what to do with the cells that he has cut out. Please tell me how to proceed with the work. Will these queen-cells be found in the mother colony or the swarm that came out? NEBRASKA.

ANSWER.—After the cells are cut out they are generally put in the nuclei, although they may also be used in full colonies. To tell all about rearing queens would exceed the limits of this department and make a book of itself. Indeed, an excellent book has been written on the subject by Frank C. Pellet, which you will do well to get.

The queen-cells will be found in the parent hive.

### Foulbrood—Transferring

1. I am sending to you a sample of some comb and brood that I have taken out of a hive. I would like to know if those cells that are sunken are foulbrood. You will notice that some of the brood is good. I bought this swarm at a sale last fall and they were in a common goods box. I have now placed them in a 10-frame hive with full sheets of foundation. The swarm is very small and not much honey; have been feeding all spring. If it is foulbrood, what would you advise to do? If it is not foulbrood, would you advise requeening, and when?

2. I have another swarm in a 10-frame hive that is extra strong. They have a very prolific queen. They have at least one-third of each frame full of brood. I am thinking of taking one or two frames from them with brood and giving to a weak colony, and replacing with full foundation sheets. What I want to know is when I take out the frames of brood, should I leave what bees cluster on the frame and put all in with the weak colony? Or should I brush off the bees and put in only the brood?

3. I have a swarm in an 8-frame hive that I bought. They had no foundation sheets and the combs are not straight with the frames. I am able only to take out one frame. They

have plenty of honey and young brood. But I want to put them in a 10-frame hive with full sheets of foundation. Would you advise putting them on top of a 10-frame and driving all bees below and placing on a queen-excluder, between the two hives? If I do this, could I save the young brood, and how long would it be before I could remove the old hive free from brood? Would you advise some other methods? MISSOURI

Answers.—1. I don't discover any evidence of disease in the samples sent. If at any time you think you have diseased brood, send a sample to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C., and in case there is disease he can tell you about it better than I can. If the queen fails to keep the combs properly filled with brood, it will be well for you to supersede her as soon as convenient, unless the bees beat you to it buy superseding her themselves

2. It will be better to give with the brood the adhering bees, unless the weak colony is so weak that the added bees should outnumber the bees of the weak colony. In that case exchange one of the combs of the weak colony for one containing as much sealed brood as possible, brushing off all bees.

3. Your plan will work all right if you can drive the bees down; but it is easier to drive bees up than down. You might drive the bees up into the desired hive, then place this on the stand and put over it the excluder and old hive. In three weeks all worker-brood should have matured.

### Partnership, Etc.

1. A and B go into beekeeping as partners. A does all the work. B furnishes $300 of the $400 capital invested. The stock this spring was 30 colonies of bees 20 empty hives and supplies for this summer's crop. What would you consider a fair part for each?

2. Since A does the work, what part should he have of the coming crop?

3. Do drone laying queens and fertile workers lay only in drone-cells, or may drones be reared from worker-cells?

4. Why do bees sometimes construct hard cups resembling a started queen-cell? I have often seen them when there could have been no impulse of swarming.

5. Are you familiar with a honey plant known as spider plant—or spider weed? What is its value?

6. Is there an association of beekeepers in Virginia. If not, give me the name of some one who could give me information about the forming of such an association. VIRGINIA.

Answers.—1 and 2. One fair way would be for B to have a certain rate of interest on the capital invested, that rate being high enough to cover any risk there might be in the case.

3. Drone-laying queens lay in the same kind of cells as other queens, and the drones they produce in worker-cells are small in size. Laying workers prefer drone-cells, but also lay in worker-cells.

4. I don't know. Maybe they think it a good plan to have a start in case it should be needed.

5. Some years ago it had quite a boom and I planted a patch of it. It is a good honey-plant, but not worth keeping on cultivated ground.

6. I know of none. Perhaps Chas. A. Reese, State Apiarist, Charleston, West Va., can help you out.

### Stingless Bees

I want to ask you a question. Is it true they are trying to raise or breed bees without stings and with longer proboscis or suckers, so as to be able to take honey from red clover, etc.? NORTH DAKOTA.

Answer.—There are stingless bees, but they will probably never be commercially useful, and I do not believe any serious effort will ever be made to have honeybees without stings.

There is a difference in the length of bees' tongues, and some effort has been made to breed longer tongues. Not much, however, has come of it. To me it appears that the more hopeful field lies in the direction of breeding red clover with shorter tubes, so that the common bee can reach the nectar.

### Queen Leaving Hive

The other day I found the queen from one of my colonies out on the grass in front of the hive and another queen I found up under the cover of the winter box. Both colonies seem to be in good condition and quite strong. Could you tell me what would make them come out at this time of the year? MICHIGAN.

Answer.—Hard to tell. It is possible that the old queen was superseded and was cast out. There is another possibility. The old queen might have been superseded and more than one queen reared to take her place, and the queens you found were extra young queens; but I do not guarantee either of these guesses.

### Uniting—Laying-Workers—Honey Plants

1. Can you unite two weak colonies without fighting?

2. I had a nice, strong colony of bees at the end of March this year, and now they are very weak. I looked into them and there were a lot of eggs in the cells and some cells had two eggs. They have no queen. I don't know whether they swarmed or not. They had no sealed brood. Do you think that they are laying-workers?

3. Have the bees got a special worker-bee that lays the eggs?

4. Do they have to be mated, or how does it come that they only rear drones?

5. I gave them two frames of brood, sealed, and one with eggs. Will they build some queen-cells out of the brood if they have no queen?

6. I also gave them a lot of bees out of the hive from which I had taken the brood. Do you think they will stay and help build up the colony, or do you think that it would be advisable to unite them with some other weak colony?

7. I have only 35 colonies of bees and there are only two weak colonies in it; all the rest are very strong. I got 25 18-frame hives and got some supers on some of them; robbed them the first of May. Don't you think that is pretty early for this year?

8. How does it come that they don't class the saw palmetto as a honey-plant? Is not that the main flower down South for producing nectar? They did not mention it in the last Journal on Southern honey-plants.

9. I have a strong colony that is always fighting. I think that there are robber bees that try to get in, but they are killed. This goes on day after day. How can a fellow stop them? I did not expose any honey or anything sweet about. The colony is just loaded with brood. They have a fine queen and quite a lot of stores, but not enough to take any out. Some colonies averaged 50 pounds surplus so far this season; mostly palmetto honey. FLORIDA.

Answers.—1. Yes, by taking proper precautions. One way is to put a sheet of common newspaper over the top-bars of one hive and set the other hive on it. The bees will gnaw away the paper and gradually unite without fighting.

2. It looks very much like a case of laying workers.

3. No. A lot of workers are engaged in the miserable business.

4. No, there is no mating. All drones are reared from unfertilized eggs, whether the eggs be laid by a queen or a worker.

5. They may and they may not.

6. The older bees that you gave them will return to their old place; the younger bees will stay. The probability is that it should be better to unite them with another colony having a good queen.

7. Likely; but I do not know much about it.

8. The palmettos were described at length in the December number of this journal. They are good honey-plants.

9. I do not know. It hardly looks as if robbers would try day after day to enter a strong colony. It looks rather suspiciously like a case of paralysis.

### Queen Breeding, Frames, Etc.

1. When running for extracted honey and using a story and a half brood-chamber, would it not be a good idea to have the top story of the 10-frame size and the bottoms half-story and the bottom-board of the 8-frame size? Would the side ventilation be too great?

2. Would you advise commercial queen-raising to one who has a great desire for it?

3. Which do you use in sections, thin or extra thin super foundation, and which is the best for brood-frames?

4. What is royal jelly composed of? Is there any substitute for it?

5. Do you think a 13-frame Jumbo hive too large a brood-chamber for a Dixie beekeeper?

6. Do you keep any bees now, and could you supply one with a breeding queen now?

7. Do you know of a breeder who breeds your stock for sale? VIRGINIA.

Answers.—1. The ventilation will be none too great in hot weather, but would be too great early in the season. You can, however, remedy this by tacking on strips under the 10-frame body.

2. A little hard to tell; but the "great desire" would certainly be a helpful factor.

3. Thin super and medium brood.

4. The bees prepare royal jelly the same as the jelly first fed to all young larvæ, from honey and pollen. There is no substitute for it.

5. Probably not.

6 and 7. I keep bees now, but sell no queens. You can get Miller queens from the Penn Co., Penn, Miss.

### Clipping, Swarm Prevention, Etc.

1. Does clipping the queen's wing prevent swarming?

2. If I have two hives containing Italian queens, how can I Italianize my apiary from them next spring?

3. On hot days, is it advisable to raise the top for ventilation?

4. How do you prevent swarming?

5. Suppose I have 8-frame hives. I will take two frames of brood and bees out of each of the first four, then move No. 5 to another stand and put my newly-made swarm in its place. Will my new swarm be strong enough and will it weaken the others enough to prevent swarming? TEXAS.

Answers.—1. No. It prevents the queen going off with a swarm, but does not in the least prevent swarming.

2. One way is to rear queens from them and with these to supersede objectionable queens. Another way may suit you; when the colony with the Italian queen swarms, put the swarm on the old stand and put the Italian colony in place of one of the dark colonies. In a week or so the Italian colony will swarm again, when you will put the swarm in its place and put the Italian colony in place of another dark colony. Do this as often as it swarms, each time putting the Italian colony in place of a dark colony and setting the dark colony in a new place. In this way each swarm will have an Italian queen.

3. It will do good, but it is rather too much work to change the ventilation at each change of weather. Better provide abundant ventilation permanently.

4. It would be a long story to give all the ways which you will find given in my book, "Fifty Years Among the Bees." Perhaps I might say that most frequently it consists in leaving the colony ten days without any egg-laying.

5. Your new swarm should be good, but unless you take away nearly all the brood from them it will not prevent them from swarming.

### Scorched Honey

1. A lot of my bees died this winter and last winter, two years. I have fed some honey from a sun capping melter; it is dark and not

fit for sale, and I am now blaming that for killing them in the cellar. Some of the hives are spotted. I ask your advice.

2. I have granulated combs from dead hives. Will bees clean them up when I put them in light hives, when I take them out of the cellar in the spring? Tell me what is best to do with them? Should I melt them up with water for fall feed? ONTARIO.

Answers.—1. It is possible that your bees had diarrhoea without the honey being to blame. But scorched honey is death to bees in winter, and it is possible that was overheated in the melter.

2. The bees will clean them up more or less thoroughly, and it will help them if you occasionally spray the combs with water.

## Diseased Brood—Dead Bees

1. After going through my bees I found some diseased brood that has got me "up a tree." Out of my 45 hives I found about 4 that had it. It is not American foulbrood, and I don't think it is European foulbrood, for the reason that it kills but few larvæ in each hive. The dead larvæ lie lengthwise in the cells in a melted form. There is no roping; the color of the larva is light, with a black speck on its head. I was talking to a beeman who keeps about 1,000 hives and he thought from my description it was the so-called "pickle brood."

2. I have a few supers that have been over hives that had mild cases of American foulbrood. The combs have never been used for brood and they are clean of all honey. I was told by an experienced beeman that they ought to be safe to use. What do you think?

3. Do you think I can get as good queens here in California as I can in the east?

4. I noticed an unusual amount of dead bees in front of one of my hives this spring. What causes this? I also noticed a few hives that had taken fully-developed brood out of the cells and dropped it in front of the hives. What causes this? Do you think it was chilled while being examined a few days before? CALIFORNIA.

Answers.—1. Send a sample of the brood to Dr. E. F Phillips, Department of Agriculture, Washington, D. C., and he will inform you as to the trouble and the remedy. If you write to him in advance he will send you, without charge, a box in which to send the brood and also a frank with which to pay the postage.

2. They are probably entirely safe to use again for surplus, with not one chance in a thousand of any danger

3. I don't know any reason why a queen reared in California should not be as good as one reared elsewhere, if reared from the same stock.

4. I don't know why the unusual number of dead bees. The dead brood carried out might have been from chilling; it might have been from starvation; it might have been the work of the wax-worm, or it might have been drone-brood that the bees did not wish matured.

## Big Cover—Winter Killing

1. I would like to know what the advantages are of the large cover that the Dadants use on their hives, and why would not a super do just as well for winter packing?

2. Will you tell me some reasons for a colony of bees winter-killing when they were in a good hive and were all O. K. last fall with plenty of bees and stores, and considering such a mild winter. ILLINOIS.

Answers.—1. One advantage is that the cover is larger than a super, and so allows the hive to be covered more warmly. Possibly another reason is that in the first place all covers were of the telescope order, and there never has seemed sufficient reason for making a change.

2. The mild winter may possibly have killed them. You say they had plenty of stores in the fall, but don't say how it was in the spring The unusually mild winter may have made them fly more than usual, thus using up all their stores. They may have been queenless. They may have had dysentery There might have been some other trouble.

## Bottom Starters—Dandelions

1 In using a 1-inch starter at the bottom of the brood-frame, how much space should be left between the starter and the upper sheet to allow for stretching in order to secure full frames? Standard Langstroth frames.

2. Can bees make a living from dandelion? If not, are there any flowers on which they can before fruit bloom? In northwestern Pennsylvania, I mean.

3. Is the common white daisy a honey-plant?

4. In putting a 4-frame nucleus in a 10-frame hive using six full sheets, is it necessary to use a dummy and increase it gradually? If so, why? PENNSYLVANIA.

Answers.—1. Anywhere from one-eighth to one-fourth inch. But an inch bottom-starter will topple over unless supported, and a much smaller starter is in danger of being torn down by the bees, unless in an upper story.

2. Yes, dandelions are plentiful enough in many places to afford bees a good living during their season.

3. I don't know. I think not.

4. It is not necessary; but it may be a help by saving the heat

## Moving Bees

Will you kindly state in the American Bee Journal the various times in the year, in the order of preference, for moving bees by railroad 200 to 300 miles? PENNSYLVANIA.

Answer.—Likely the best time is early in the spring, before the combs have become heavy with brood and honey. From that the time will constantly become more objectionable until the middle of the harvest. Better than some of these days, probably, is the time when brood-rearing ceases in the latter part of the season, but not too late for a flight after the journey. To put all these different times in the exact order of their preference is a thing for which I am hardly competent.

## Foulbrood

1. Will it cure foulbrood to put the old brood-nest over a clean hive with a bee-escape in between?

2. Can a man who claims he never heard of foulbrood, and has a colony that he never looks in himself, be made to clean it up?

3. Would I be safe in buying hives that bees died in three years ago, of foulbrood, if I boil them out good? I am speaking of American foulbrood. WISCONSIN.

Answers.—1. It might in some cases of European.

2. Yes, in those States where the law requires it.

3. Some very good authorities think it entirely safe.

## Purity—Cross Bees—Entrances

1. I have considerable trouble trying to ascertain whether or not my bees are pure. I notice that some of them are golden color and some below the three-bands are very black. Is it possible for bees to have three distinct bands and yet not be pure? Can you state what is an infallible mark of purity?

2. Occasionally my bees become very cross, to the extent even, that I cannot walk out among the hives without having several of them chase me about and even follow me some distance away. At other times they will be very docile, even allowing me to handle them without smoke. What do you suppose is the cause of this difference in their temper?

3. I am giving my bees as much space at the entrance as possible, having taken away the entire entrance blocks and leaving a space all the way across the hive of about an inch. Is this too much space at the entrance? Could this large space have anything to do with their being cross at times? Would this big entrance help to start robbing while a heavy honeyflow is on? ALABAMA.

Answers. 1. Yes, a worker-bee may have three bands and yet not be pure. A colony of mixed blood may have some workers with three bands and some with less, and in such a colony I suppose the worker with three bands is of no purer blood than one with less. But if all the workers of a colony have three bands, the colony is counted pure blood. Yet in a colony of pure blood you may find impure workers that have entered from other colonies.

2. Bees that are busily storing a heavy flow are on their best behavior, and a sudden stop in the flow may make them cross.

3. My bees have an entrance two inches deep the whole width of the hive, and it seems none too much. I don't believe it has anything to do with their being cross, nor would it start robbing in a heavy flow.

## Equalizing Brood

Have you ever changed your mind as to the advisability of taking brood from the stronger and giving to the weaker, to equalize colonies in spring? Is it not well to break up the weaker altogether by giving their brood and bees to the stronger and making increase later, where valuable queens would not be discarded? WISCONSIN.

Answer.—Up to the present I have never had occasion to change my mind on the subject, nor to have any sort of question about it. But when a man of your experience raises the question it is time to give the whole matter at least thoughtful consideration, whether I change my mind or not. So I have given a pretty good think to it. Especially I have thought over the hundreds of cases in my own experience through many years, and I cannot recall a single case in which I thought the plan was not a good working plan, always having regard to certain restrictions, especially not to reduce any strong colony to less than four broods, and to help first the strongest of those needing help.

Of course, I can imagine a case in which it would not be advisable to try to bring up all the colonies in the apiary to good working order. If in an apiary of 50 colonies there was only one strong colony and the rest were the flimsiest of weaklings, equalizing the whole would only result in failure to get any crop at all; whereas a small number might be made to yield at least some surplus. The others might be doubled up to save the bother of fussing with them. (Even then, if they are dwindlers, as G. M. Doolittle has pointed out, the doubled-up dwindlers will be dwindlers still.)

But such a case is so much out of the common as not to be fairly considered. Suppose we have two colonies, one with 3 and the other with 5 brood. Left to itself the weaker one will make very slow progress; but if a frame of brood be given to it from the stronger it will be in condition to walk right along increasing in numbers, and the benefit to the weaker will overbalance the harm done to the stronger. Suppose 5 of the 50 colonies in an apiary are weak. It would simplify matters to unite these 5 with stronger colonies and get them out of the way. But if we let them alone till all the others are made strong, we can then, at a very little expense to any of the stronger colonies bring up the 5 into serviceable condition, and get a little larger total crop than if we had doubled up the weaklings. At any rate this plan has worked out so well for me that as yet I see no good reason for changing it; yet it is not always wise to be too positive.

## To Cement Paper on Metal

Dissolve dextrine in warm water; take 20 parts of glycerine, 10 parts of glucose. Apply this mixture to your paper, then rub metal well with a piece of an onion, then apply to metal.

This is an old recipe, but I have never tried it. Let the readers of the American Bee Journal try it and report results.

BRO. ALPHONSE VEITH, O. S. B.,
St. Meinrad, Ind.

Beedom
Boiled Down

## Introduction of Virgin Queens

By J. F. Diemer

THE introduction of virgin queens is a hard nut for many beekeepers to crack, probably because it is not practiced to any great extent. The oftener one does a certain kind of work, the more efficient he becomes.

Introducing queen-cells is very much easier, but even then it is necessary to take a look-in, to see whether she is hatched, whether she has all the limbs that belong to a perfect queen, for she may have imperfect wings, and in that case would only be a drone-layer. Also the careless handling of the queen-cell may kill the young queen in it.

If they are allowed to hatch in the nursery cage, the poor ones may be sorted out and only the good ones used.

The nursery cage which I use is so arranged that the bees have free access to the queen-cells at all times. The cages are made of woven wire. At the bottom is an opening, made from a queen-excluder fastened to the wooden plug that closes the lower end of the cage. When removing the cage, a slight turn closes the hole, confining the bees in the cage, 10 to 20 of them, with the queen. These are introduced with the young queen and, I believe, help the safe introduction of her majesty.

Five different conditions may exist in the queenless nuclei or colonies where a young queen is to be introduced, as follows:

No. 1. Bees only.

No. 2. Bees and eggs only.

No. 3. Bees, sealed brood and queen-cells.

No. 4. Bees, eggs, unsealed brood and sealed brood.

No. 5. Bees, eggs and unsealed brood only.

The time the queen is to be confined in the cage is regulated by the amount of candy in the tube. The tube I use is 2 inches long and one-half inch in diameter, and if it is full, it takes the bees 48 hours to eat it up and release the queen.

In introducing a queen to Nos. 1, 2 and 3, I take all the candy out except a small amount, because it is easy to get these colonies to accept a queen. Time is 4 to 6 hours.

The queen-cells should be removed from No. 3.

No. 4 is all right after 48 hours. No. 5 is the hardest to deal with, especially if it has 3 or 4 frames of brood, and the bees are old and crabbed. If their brood is removed and sealed brood only given them, they will accept a virgin in 48 hours.

If introducing either a virgin or a laying queen, it is very important that there be no robbing, or excitement. I lose very few virgins, because I do not try to introduce them when there is the least excitement.

It is not best to try to introduce old virgins, as they are too anxious to leave the hive for their wedding flight.

Liberty, Mo.

## How Exports Affect the Honey Market

### Adequate Packing a Necessity—A Prospectus of Honey Prices

"FOREIGN importers will no longer tolerate any such packages as have been shipped in the last two years, as the loss of honey packed in cans and cases has been tremendous, especially so on goods shipped early in the season, when the honey was liquid."

This is the statement of one of the leading export commission merchants of New York City. Criticising our American methods of packing honey, he continues: "We are sufficiently experienced in this line to know that radical changes must be made in the packing of American honey for exportation. If the business is to be promoted, the present packing of honey for export is absolutely unsatisfactory."

In view of the fact that many authorities agree that exportation of honey is keeping up the present high prices, more so than domestic demand, this advice from so high an authority is pertinent. The commission merchant mentioned estimates that not one single importer in Italy made a profit on the importation of American honey, in spite of the fact that all this honey arrived in Italy on a strong advancing market. The loss in revenue was due to the loss in transit, this in turn being the result of improper packing.

This same authority advises that second-hand cans and cases should not be used for export. He advises everyone to pack American honey in cans and cases for export so that foreign countries will want to buy here always, instead of only when they have to. The placing of corrugated paper in the bottom of cases as well as at the sides is advised. It is estimated that the ends and center partition of all honey cases intended for export should be made of not less than seven-eighths-inch lumber, and the top and bottom of not less than seven-sixteenths-inch lumber. On all cases the use of iron straps and the nailing of these straps is advised. This makes a substantial package. It can be easily opened, as it is necessary for exporters at the seaboard to sample 10 per cent of all such honey.

An importer in London advances the information that 6,000 tons of honey held in Australia for lack of freight room is now coming on the London market. He advises that England will give preference to buying from her own colonies, especially with freight conditions becoming normal.

Reliable information indicates that towns on the coast and most large producers have cleaned up on last year's honey crop. However, a number of wholesale grocers throughout the country have on hand from one to two carloads of honey purchased last October in anticipation of a sugar shortage. These factors will have a vital bearing on the demand and price of honey next fall. They may well be considered by every commercial producer of honey in the United States.

## Certificates for Beekeepers

I have read with interest the work of the bee clubs and what they are doing for our young people. In the bee club the prize goes to the one who produces the greatest surplus, while there may be a better beekeeper, in a worse location, who can never aspire to the first rank. There is a system in vogue in Ireland that meets with great success, and that is of granting certificates of competency after an examination, to those who can pass the tests. There are two grades, the higher being the experts.

I would suggest that the American Bee Journal issue certificates having set tests for the two grades, and appointing reliable "experts" to see the tests carried out. There would also be a written test to see if the student knows the underlying principles of the art.

A good test for the lower grade would be the transfer from box or skep to hive in one operation, and for the written part questions dealing with age of queen, drone and worker at different stages of their development.

The examination for the higher certificate would be much stiffer, going into bee diseases, etc. One test I know was to take three queens from three hives and then replace them without having let go of them at all during the operation; one queen had to be held in the lips to successfully get through this test.

However, the main object was to get every beekeeper striving first for ordinary proficiency, and later on he or she is sure to want to be an expert.

This system can be made to reach all, while only the favored few can attend the college courses and get the instruction so badly needed to stamp out foulbrood. Again, anyone who has bees and cannot, or will not, mind them can thus get some one who, they know, is capable to look after them, either for pay or on shares.

Beekeeping is very much like what

the Irishman said about drinking whisky, "not so much an education as it is a gift."

North Lonsdale, B. C.

## Microscopical Studies

IN the American Bee Journal for February, 1919, Dr. Brunnich, of Reuchenette, Switzerland, offers an interesting explanation for the **rectal glands of Chun,** both regarding construction and function. Their historical features permitted him to conclude that they are possibly concerned with the excretion from the blood of excessive water absorbed through the lining membrane of the honey sac from the nectar gathered, and that they appear to be capable of double filtration. Developing this idea, one may consider them, so to speak, the "kidneys" of the bee, which indirectly help in concentrating the nectar during its transformation into honey, and directly aid in "washing" the blood. Supposing this explanation is correct, it would be feasible to presume also that an additional benefit from the dilution of the blood is to raise its pressure, and thus help the bee to carry her load to the hive, since a higher blood pressure would presumably aid the bees in her heavy flight. Following this line of argument, it is feasible again to suspect that probably some irritation, or lesion of these glands occurs in the pathological **diarrhoea** of bees, and that by excessive secretion of fluid the blood pressure is abnormally lowered, indirectly causing disability of flight. The apparent **dislocation of the wings** might be either accidental, from fruitless attempts at flight, apart from being a sign of debility in old bees which are not otherwise diseased, or might be the result of loss of muscular tone, and partial nerve paralysis, resulting from metabolic toxaemia. The same theory of blood pressure which I suggest would hold equally well with normal, but chilled bees that are unable to fly. Since the blood pressure is dependent on the rates of the heart beat and respiration, apart from the volume of the blood, and since the rapidity of these rates is governed by temperature, it follows that the blood pressure of a chilled bee is bound to be low. This theory is further capable of explaining certain phenomena which I shall incorporate in my "Notes on 'Isle of Wight' Disease" in the British Bee Journal.—A. Z. Abushady, in British Bee Journal.

## Paste for Tin

We have tried many things to make a paste that would always stick on tin. Here it is. This was given to us by a traveling man for the Standard Oil Co., who told us it is what they use, and you know their labels stick. The proportions as given here are for small quantities; you may use more starch to make the paste thicker, but this is about what we find right for general use:

Take two heaping teaspoons of corn starch and dissolve in a small amount of cold water. In another vessel dissolve one teaspoon of Lewis lye, or any good concentrated lye, mix with the dissolved corn starch. If this makes the starch too strong of lye, it can be reduced, but if too little is used the label will not stick to the tin. If too strong, it may turn the label yellow. When thoroughly mixed the paste is ready for use. Apply paste to back of labels with a brush or cloth. If labels wrinkle when putting them on, wet both sides with water, so they are thoroughly dampened, before applying the paste. This is a good paste for anything to which paper is to be attached.

J. R. SANDERSON.

## Yellow Jackets

In the March number of the Bee Journal someone in the State of Washington expresses a "wish to learn some way to help the bees to handle yellow jackets." Dr. Miller's advice is excellent, but, unfortunately, we cannot always keep every colony strong, and it is very difficult to find all yellow jackets nests.

Two years ago we had a scourge of yellow jackets in this locality and some lost whole colonies of bees. Last year we had comparatively few. I heard of no one finding and destroying the nests. Following is the plan adopted by some of us very successfully:

Get fly traps, the kind made of wire netting, where the insects enter at the bottom and cannot get out because they fly upward, where there is no escape. Get a large one—they are made a foot and more high. Put a bit of meat or fish in the trap and set it out and the yellow jackets will flock to it. When it is full of yellow jackets, put it in boiling water, empty it and reset it. One person told me she had to empty hers twice, and even three times a day, and it was a large trap.

EMILY D. SMITH,
Los Gatos, Cal.

### Inspection in Michigan

Two acts, which are of interest to Michigan beekeepers in particular, have been passed by the recent Legislature. One makes certain changes in the law relative to quarantining of diseased districts and the other being an appropriation of $10,160 for carrying on the work of the office of the State Inspector of Apiaries.

The appropriation bill was passed as a budget bill and specifies that the State Inspector and Chief Deputy shall serve throughout the year. Other deputies are to be used only during a part of the spring and summer. The corps of men have already been selected for the work and will begin their duties on July 1. It is unusual for an inspector to exercise any of the authority which has been conferred upon him. When authority is needed, he has all that is necessary. It is the understanding of all inspectors that their duties are to be beneficial to every beekeeper with whom they come in contact, to encourage better methods of beekeeping, to encourage intelligent beekeepers to increase their number of colonies, to stimulate local organizations and field meetings, and in general to do everything in their power to help build up the industry. When law enforcement is the obvious duty, then the law is enforced without the assistance of constable, sheriff or any other officer who doesn't know a bee from a yellow jacket. We are now enforcing the law against box hives and other nuisances in which bees are sometimes kept.

During the coming year we will have several short courses given jointly by the College and the office of the State Inspector. County beekeepers' schools will be continued, and within the year every county having a beekeeping industry will be visited. Publications will be continued, and it is hoped to enlarge somewhat upon the Beekeepers' Letter. We shall continue to co-operate with the State Beekeepers' Association, for it has shown itself to be a power for good among Michigan beekeepers. The distribution of Italian queens for the control of European foulbrood will be tried out in a small way this summer. Field meetings and demonstrations started in May and will continue all summer. Appeals for individual help with disease will be cared for as heretofore. Our present law is broad enough so that it is possible to cover any activity which is really beneficial to the industry.

B. F. KINDIG.

### Queen Lost in Mating Trip

In the answer given by Dr. Miller, on page 238, on the above subject, to the second enquirer, the doctor probably misunderstood the question, for there are numerous instances in which the bees have no resources left in the matter of brood or young queens, when the virgin queen is lost in her mating flight. The first queen hatched usually destroys the others, unless the colony wishes to swarm again, when the bees prevent her from doing so.

The only remedy to apply when the queen gets lost in her wedding flight is a new queen or a queen-cell ready to hatch. Every queen breeder watches closely the colonies that have queens to be fertilized.

### New York Field Meets

A field meet of the Western New York Honey Producers' Association is to be held July 26, at the home apiary of Adams & Myers, Ransomville, N. Y. Another meet, of the New York State Association of Beekeepers' Societies, will be held August 1, at the home apiary of Deroy Taylor, Newark, N. Y. If it is possible for some one of the American Bee Journal staff to be present, he will attend both of these meets.

### Southern Queen Breeders Swamped

The queen-breeders of the South probably never had as busy a season as this. The weather has been extremely unfavorable for shipping bees, on account of numerous rains.

### Yellow Jasmine

Your editorial in the May Journal on "Does the Yellow Jasmine Poison Bees?" just read. In regard to same shall say that this is my first season near the Atlantic coast of North Carolina, where the yellow jasmine is found abundantly, in fact for three weeks it was our only source of nectar during April. The last blossoms are now disappearing. Mr. F. S. Johnson, of Mt. Airy, N. C., was with me lately and we noticed many bees dying in front of the hives, many being young bees. I had noticed bees dying similarly in the Piedmont section in former years, with the difference that formerly it seemed to affect old bees. The disease, or trouble, has about disappeared. I think at one time enough bees died to seriously affect the strength of a colony. Jasmine honey is amber colored and is yielded in quantities to aid brood-rearing largely.

The spring here has been very backward, with killing frosts on April 26. Flowers yielded no honey for a week or more after it.

We are now in a great flow from blackberry and cotton gum (a tupelo), with gallberry about to open. Our winter was very mild and few bees were lost.

Another fact on jasmine honey. I was surprised to find last week that one colony that had much more honey than any other is headed by a hybrid queen, mismated, making her bees almost black. Whether they are immune to the poison, as indicated by Mr. Brown, or this just happened, I can't say. This was a very weak colony earlier in the season.

BRUCE ANDERSON.

---

### Death of Dr. McCray

Just as we are going to press we learn of the death of Dr. A. H. McCray, which occurred Saturday, June 14. Dr. McCray, together with Dr. G. F. White, will be remembered as author of the Department Bulletin "Diagnosis of Bee Diseases by Laboratory Methods. Dr. McCray had lately been director of the Laboratory of Hygiene of the State of Montana and was conducting investigations on the spotted fever. It is believed he contracted this disease during his studies. Particulars will follow in our August number.

---

### A Drone-layer

Finding a queenless colony in which a drone-layer had developed, I wanted a quick, easy and certain way to separate the bees from the criminal, so proceeded as follows:

On a piece of board which effectually closed the entrance of the hive I put a small wire bee-escape, open-out; then from another hive took a frame of brood and put it into a hive with three other frames and a tight division-board and set the hive with a 3-bee entrance almost in contact with the cone bee-escape.

The bees were very active, carrying in pollen and feed, and not being able to get into the parent hive naturally went into the other, and finding brood, proceeded to start a queen-cell.

I assumed that the drone-layer, like a laying queen, would remain on the combs, at any rate until the bees were about all gone, which proved to be the case. The next thing was to pick out half a dozen drones, put them in with the bees in the new hive, then a little formaldehyde finished the drone-layer and drones.

DR. BONNEY.

---

### Beekeepers' Chautauqua is First of Its Kind

The beekeepers' chautauqua is a new departure in the way of summer celebrations. But that is the plan of the Wisconsin Beekeepers' Association for August 25-30 this year. The chautauqua will be held on the old Lake Monona assembly grounds at Madison, announces H. F. Wilson, secretary of the beekeepers' organization.

Although the social side of the meeting will be emphasized, the plans include a series of lectures by men well known in the beekeeping world. The speakers who have already agreed to talk to the Wisconsin fraternity are E. F. Phillips, in charge of beekeeping work for the U. S. Department of Agriculture, and G. S. Demuth, his assistant.

---

### New York Meet at Newark, N. Y.

The program of the State meeting is not yet ready, but the following people expect to be with us at Newark August 1:

E. R. Root, L. C. Dadant, Dr. Phillips and Kenneth Hawkins, all very prominent men in the beekeeping world.

Special attention is going to be given to the problem of creating a demand for honey. Come and prepare to give this problem your best support. Everyone is welcome. Basket lunch at noon.

Program with directions of how to reach our place will be mailed on request, either by Deroy Taylor, O. L. Hershiser, Kenmore, N. Y., or J. H. Cunningham, 303 University Place, Syracuse, N. Y.

There will be several demonstrations there on that day that will be bound to interest you. Come and bring your friends.

J. H. CUNNINGHAM, Secy.

## BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Giving a Queen

After the first swarm has issued, can you give the parent colony a laying queen successfully? If so, what method would you recommend to introduce her?

Washington.

Answer.—When the first swarm issues the old queen goes with it, leaving a number of queen-cells. If you wait a week or more (but not waiting till the first virgin emerges from her cell), and then kill all the queen-cells, there will be left nothing from which a queen can be reared, and that will have a tendency to make the bees ready to accept a queen. But there are other things to be considered. When the swarm issued, a large part of them were old bees, leaving mostly young bees in the old hive. If you wait a week before introducing, the bees will be a week older, and hence a larger proportion of older bees, and it is the older bees that raise the mischief when a new queen is introduced. Besides that, waiting a week before introducing the queen will be the loss of a week in the rearing of brood, which may be a matter of considerable importance.

So, taking all into consideration, it is better to proceed as soon as convenient after the prime swarm has issued to introduce the new queen. Destroy all queen-cells, whether sealed or unsealed, even those containing only eggs. If you have bought a new queen for introduction, directions as to how to proceed will no doubt accompany her, which directions you will do well to follow.

It may be, however, that you have reared a queen in a nucleus, and want to use her for introduction. Use one of the introducing-cages that are in common use. Use a long, slender nail to pin the cage on the comb, putting it in the central part of the hive, surrounded by brood, where there is no danger that the queen will be deserted by the bees and chilled.

The cage is provisioned with queen candy, and the construction of the cage is such that it will take a day—perhaps two or three days—for the bees to eat away the cardboard that covers the candy, then eat the candy and release the queen.

If you haven't a regular introducing cage, you can make a cage that will answer. What are called "one-cent cages," because the material costs only a cent, are thus described in Dr. Miller's book, "Fifty Years Among the Bees":

"I take a pine block, 5x1x⅛ in., and wrap around it a piece of wire-cloth 4 inches square. The wire-cloth is allowed to project at one end of the block a half inch. The four sides of this projecting end are bent down upon the end of the stick and hammered down tight into place. A piece of fine wire about 10 inches long is wrapped around the wire-cloth, about an inch from the open end, which will be about the middle of the stick, and the ends of the wire are twisted together. I then pull out the block, trim off the corners of the end a little, so that it will easily enter the cage, slide the stick in and out of the cage a number of times, so that it will work easily, and the thing is complete. When not in use, the block is pushed clear in, so as to preserve the shape of the cage. As the bees cannot release the queen in a cage of this kind, it will be necessary for you to release her yourself at the end of perhaps three days.

If the queen to be introduced is from a nucleus in your own yard, you may like still better, instead of putting the queen in a cage, to put the nucleus, queen and all, into the queenless colony.

### Selecting a Breeding Queen

She who would make a real success with her bees will do well to take for her own the slogan, "Breed from the best." Even if but a little be done in that direction, the results may be quite important. If only one colony in twenty be very poor, replacing the queen of that one colony with a queen reared from the best will make more difference in succeeding crops than might be supposed. If it should double the harvest of that one colony the effort would seem well worth while; but it may make still more difference in another direction, for the drone descendants of that poor queen may cause a slump in the yield of more than one colony a year or two later.

If you do nothing more than to replace a few of your poorest queens with others of best parentage, it is time to begin now to take steps toward deciding which is your best queen, as also the second best, third best, and so on. For if you should decide as to which is best, paying no regard to the others, the bees might take it into their heads to supersede that best queen this fall, and then you are out. Please keep in mind that you are keeping tab on your queens this year so as to know what to do next year.

Several things are to be considered in deciding what you will choose for a breeder. A queen with very cross bees would be disqualified. So would a queen whose workers are not three-banded, if you are working for Italian stock. For a comb-honey producer, a queen whose workers should have sections with watery cappings would not do. Likely you would make a difference as to whether a queen was much or little given to swarming.

However it may be about other items, one thing you must keep track of, and that is the the amount of honey stored by each colony. There must be no guess work about it; each time you take a section or extracting-frame, you must put it down in black and white. One way is to have in your record book one or two vacant lines above the record of each colony, putting there the number of sections or pounds taken.

It is easy to give credit for the number of sections taken. To keep tally for extracted honey is not so easy. One way is to credit a certain number of units for each frame fully filled. You might use any number most convenient for that purpose, say eight. Then you would credit 8 for a full frame, 4 for one half filled, 6 for one three-fourths full, and so on. Perhaps you may devise some method you may like better; only have some way so that you will know how any colony compares with any other in the matter of storing.

If each colony is left to its own devices throughout the season, then these figures are conclusive; a colony having 100 credits is a better storer than one with 90 credits, and that's all there is to it. But if you have practiced equalizing colonies early in the season, taking brood and bees from one colony and giving to another, then the case is different; the one credited with 90 pounds may be a better storer than the 100-pound one. The 90-pound colony may have had taken from it 2, 3 or more frames of brood with adhering bees, thereby bringing down its storing ability, and for this the queen should not be blamed. The 100-pound colony may have had brood given it, increasing its storing capacity, and for this the queen should not have credit.

So these are the two things you must keep track of carefully, the amount of surplus stored by each colony, and also the number of frames of brood and bees taken or given. Then after the season is all over, perhaps some time next winter, you will be ready to make out the comparative standing of each colony, a matter which may be left for future consideration.

QUEENS

By return mail. A choice lot of untested queens for July delivery, bred and selected from the best stock that can be had; single, $1.25; doz., $10.

A. B. MARCHANT
DOCTORTOWN, GA.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

### BEES AND QUEENS

ITALIAN QUEENS AND NUCLEI—
Untested queens, $1; tested, $1.50; select tested, $2.50.
1 Frame Nucleus, $2.25; 2-frame, $4.00.
1-lb. package of bees, extra, $2.25; 2-lb. package, $4.00.
A trial order will convince you of their merits. H. A. McCarley, Mathis, Tex.

THE AMERICAN BEE JOURNAL is prepared to furnish printing for beekeepers. High quality, prompt service and satisfaction. Our shop is in charge of a man who specializes in printing for the honey producer. Send for our catalog of honey labels, stationery, etc.
American Bee Journal, Hamilton, Ill.

WANTED—A few Carniolan queens.
John Kneser, R 1, Hales Corners, Wis.

FOR SALE—Golden Italian queens, untested, $1 each; tested, $2.
J F. Michael, Winchester, Ind.

FOR SALE—Fine Italian queens, untested, $1 for one; $5.50 for six; tested, $2 for one; $9 for six; tested by return mail, untested ready June 1 to June 10.
R. B. Grout, Jamaica, Vt.

FOR SALE—Leather colored Italian queens, tested, June 1, $1.50; untested, $1.25; $13 a dozen. A. W. Yates,
15 Chapman St., Hartford, Conn.

100 COLONIES in 8-frame hives with one super each, for sale, or would work on halves with good man. Location fine.
Mrs. T. H. Carruth, Big Bend, La.

ITALIAN QUEENS—Northern-bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, $1; twelve, $11; fifty, $45. Send for circular.
J H. Haughey, Berrien Springs, Mich.

FOR SALE—Hardy Italian queens, 1, $1; 10, $8. W. G. Lauver, Middletown, Pa., R. 3.

FOR SALE—Goldens, untested, 1, $1.25; 6, $6.50; 12, $11.50. S. A. Tyler, Emden, Ill.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, $1 25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. H. G. Dunn,
The Willows, San Jose, Calif.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. Garden City Apiaries,
San Jose, Calif.

FOR SALE—Bright Italian queens, $1 each; $10 per doz. Ready April 1. Safe arrival guaranteed.
T. J. Talley, R. 4, Greenville, Ala.

Head your colonies with Simmons' Famous Italian Queens. They took first premium at New York State Fair last September. Goldens or three-bands: 1, $1.50; 6, $7.50; 25, $30. Orders booked now and filled in rotation. Also nucleus from same stock ready for June delivery. Allen R Simmons,
Fairmount Apiary, Claverack, N. Y.

J. B. BROCKWELL'S Golden Queens, untested, May, June and July, $2 each; six, $7.50; doz., $14; tested, $4 each. Breeders, $5 to $20 each; 3 f. nuclei with tested queen, $9.
Barnetts, Va.

FOR SALE—3-band Italian queens ready June 1. Untested, each $1; twelve, $10; 100, $80. No disease here and satisfaction guaranteed. A. E. Crandall & Son,
Berlin, Conn.

LEATHER and all dark colored Italian queens, when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock. C. W Phelps & Son,
No. 3 Wilcox St. Binghamton, N. Y.

SWARTS GOLDEN QUEENS produce golden bees of the highest quality; satisfaction guaranteed. Mated, $1, 6 for $5; tested, $2.
D L Swarts, Lancaster, O., Rt. 2.

FOR SALE—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, $1.25 each; 6, $6.50; 12, $11. Satisfaction guaranteed. W. T. Perdue,
Route No. 1, Fort Deposit, Ala.

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each; half doz., $4.50, or $8 per doz. Select untested, 90c each; half doz., $5.50, or $10 per doz. Tested, $1.50 each. Safe arrival guaranteed.
Tillery Bros., R. 5, Box 1D, Georgiana, Ala.

FOR SALE—One of the best queen breeders in the United States is now raising queens for us from selected stock of leather-colored Italians. We offer warranted queens at $1 each, or $90 per hundred. Tested queens $2 each. Satisfaction and safe delivery guaranteed. Queens ready now for immediate delivery. Order now, as our supply is limited.
The Foster Honey & Mercantile Co.,
Boulder, Colo.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2. C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

FOR SALE—Three-banded Italian queens; untested queen $1, six, $5.50; twelve, $10. Tested queens $2 each.
Robert B. Spicer, Wharton, N. J.

FOR SALE—Nine 10-frame hives of bees, wired full sheets foundation, $8 each; 25 new hive bodies; almost new 2-frame Cowan extractor. Make me an offer. M. E. B.,
5729 Eichelberger St., St. Louis, Mo.

TEXAS BRED QUEENS—As our bee shipping season is practically over by the first of June, we will have some extra queens to offer at the following reduced prices: Untested, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40. Select untested, 1, $1.50; 6, $7.50; 12, $13.50; 50, $48. Tested, 1, $2; 6, $10.50; 12, 18.50. Select tested, 1, $2.75; 6, $15; 12, $27.

One-pound package of bees, $2.40; 25 or more, $2.16 each. Two-pound package of bees, $4.25, 25 or more, $3.83 each. Three-pound package of bees $6.25, 25 or more $5.62 each. One frame regular nuclei with 1 pound extra bees, $4.50 each. Two-frame regular nuclei with 1 pound extra bees, $6 each. One-frame regular nuclei with 2 pounds extra bees, $6 each. Two-frame regular nuclei with no extra bees, $4.50 each. Three-frame regular nuclei with no extra bees, $6 each. All by express f. o. b. here.

Add the price of queen wanted when ordering bees. Circular free giving details.
Nueces County Apiaries, Calallen, Texas.

EDSON APIARIES increased queen rearing facilities will insure the prompt delivery of A1 laying Italian queens, leather colored or golden. Prices reasonable. Address
Edson Apiaries, West Butte, Cal.

ITALIAN QUEENS of "Windmere" for sale; untested $1, tested $2. Nuclei in limited numbers during July and August.
Prof. W. A. Matheny,
Ohio University, Athens, Ohio.

FOR SALE—Extra fine Dr. C. C. Miller queens, untested $1 each, 6 for $5.50, 12 for $10, 100 for $80. With 400 to draw from I will be filling orders by return mail.
Curd Walker, queen breeder,
Jellico, Tenn., Rt. 1, Box 18.

FOR SALE—Michigan bred Italian queens; am now booking orders for August 1 delivery; 3-band only; untested, 1, $1; 12, $10; 100, $80. Tested, $1.75 each.
D. A. Davis, North Detroit, Mich.

FOR SALE—Full colonies of bees in 10-frame hives with metal covers, at $8.
Frank France, Platteville, Wis.

QUEENS—BEES—Three-band Italians; productive, gentle. For July queens, untested, 75c; five, $3.50. Two-frame nuclei and queen, $4.75. Sunset Farm, Asheboro, N. C.

FOR SALE—Italian queens; select just hatched, 50c; untested, $1. Especially safe introduction plan free. Order in advance.
James McKee, Riverside, Calif.

FOR SALE—I am up with my orders and better prepared for shipping prize-winning queens. My queen was awarded first prize at State Beekeeper's Convention held in Little Rock May 31. Untested, $1; tested, $2.
H. P. Gannaway, R 1, Box 208, Ft. Smith, Ark.

FOR SALE—For spring delivery—Colonies of Italian bees, fine strain, with tested queen, in one-story 8-frame single-wall hives, full depth, self-spaced Hoffman frames, nearly all wired, $10 each. A few colonies in 10-frame hives, $12 each; all free from disease; f. o. b. here.
Wilmer Clarke, Earlville, Mad. Co., N. Y.

PURE ITALIAN QUEENS—Doolittle and Moore choice stock, also goldens that are golden. Every queen mated and laying before being caged. Select untested, $1.50 each. Select tested, $2.50. For large lots write for price. Safe arrival and satisfaction I guarantee.
J. E. Wing, 155 Schiele Ave., San Jose, Cal.

I. F. MILLER'S STRAIN Italian Queen Bees for sale. By return mail or your money back. Northern bred, for business, from my best superior breeders; gentle, roll honey in, hardy, winter well, not inclined to swarm; leather color or 3-banded. Queens a specialty; 25 years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, $1; 6, $5 50; 12, $10. Select untested, $1.25; 6, $6.75; 12, $12.
I. F. Miller, Brookville, Pa., R. R. No. 2.

## HONEY AND BEESWAX

FOR SALE—4 60-lb cans choice extracted buckwheat honey, 1 60-lb. can clover and buckwheat mixed, 400 sections fine quality buckwheat honey, about 400 sections fine clover and about 200 sections clover and buckwheat mixed in 4¼x1¾ sections. Will sell the whole lot at 19c, or a part of it for 20c, f. o. b. here. Send cash with order.
Wilmer Clarke, Earlville, Mad. Co., N. Y.

WANTED—To buy 100 to 300 colonies of bees with location, preferably in Michigan. Address 1635 South 25th St., Lincoln, Neb.

WE WANT every subscriber of the American Bee Journal to become a subscriber of the Domestic Beekeeper. Listen: A $5( or more) order of beekeepers' supplies at catalog price bought through the Domestic Beekeeper, Northstar, Mich., and a dollar extra for a year's subscription to the Domestic Beekeeper, will entitle you to a dollar rebate, leaving your subscription to the Domestic Beekeeper absolutely free. Could one ask more? This offer will give one an idea of what the Domestic Beekeeper is doing for its subscribers in the way of buying their supplies.

FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.
A. G. Woodman, Grand Rapids, Mich.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St. Chicago, Ill.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

## FOR SALE

FOR SALE—200 second-hand 60-lb. honey cans in good condition. John Kneser,
R. 1, Hales Corners, Wis.

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you. The Deroy Taylor Co.,
Newark, N. Y.

FOR SALE—Frame nailing device. You can make very satisfactory and simple device. Send 50c for drawings showing construction and operation for nailing Hoffman frames; use idea for nailing any style of frame.
Clarence Aldrich, Santa Barbara, Calif.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

FOR SALE—40,000 pounds of No. 1 extracted clover honey and 35,000 pounds of aster honey; both of extra light color, heavy body and fine flavor, in 60-lb. cans.
W. B. Wallin, Brooksville, Ky.

FOR SALE—25 10-frame hives, never been used, full sheets foundation.
30 lbs. foundation brood and surplus.
15 feeders.
70 10-frame queen excluders.
100 comb supers, 10-frame.
2,500 sections, 4¼x4¼x1⅞.
Five to six hundred extracting supers, with combs; no disease. E. Keister, Clarno, Wis.

FOR SALE—Silver Spangled Hamburg eggs and fine, rare old Paganini violin for sale.
Elias Fox, Union Center, Wis.

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, $1. American Bee Journal,
Hamilton, Ill.

FOR SALE—A limited number of bees and queens for May delivery from either home apiaries or South Carolina; safe delivery guaranteed if shipped by express. Parcels post shipments at buyer's risk. We invite correspondence as to details and price.
The Deroy Taylor Co., Newark, N. Y.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

SPECIAL SALE—1-story 8-frame dovetailed hives in flat, with telescope ⅞ wood covers, in packages of 5, at $10 per package.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE—One hundred and seventy-one 1-frame nuclei shipping cages; twenty-five 10-frame G. B. Lewis beehives; one hundred comb- honey supers; one hundred eight-frame bottom-boards and covers; fifteen pounds of medium brood; fifteen pounds extra thin Dadant foundation; about two hundred Hoffman Brood-frames.
Chester E. Keister, Clarno, Wis.

FOR SALE—50 supers at half price; have more than I need. Mrs. Anna Josephson,
Granville, Ill.

## SUPPLIES

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

WM. A. RAFAEL, former manager for the A. I. Root Company at San Francisco, has established a beekeepers' supply business together with Mr. J. E. Wing, queen breeder, in the Southern Pacific Building, No. 16 Steuart St., San Francisco. Rafael & Wing.

## WANTED

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—July, 1916, June, July and December, 1917, and January and March, 1918 numbers of the American Bee Journal; will pay 10 cents per copy. Please wrap so that the whole Journal is protected.
American Bee Journal, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—Second-hand 10-inch foundation machine, 5 cells to the inch; must be in good condition. Write giving full particulars as to date bought, size rolls, general condition and price (lowest) to Isidoro A Baldrich,
P. O. Box 25, Cayey, P. R. W. I.

## SITUATIONS

WANTED—Man with some experience to work with bees coming season; state age, experience and wages; we furnish board. The Rocky Mountain Bee Co., Billings, Mont., Box 1319.

## MISCELLANEOUS

E. D. TOWNSEND, the present owner of the Domestic Beekeeper, bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the Domestic Beekeeper at the same low manufacturers' price. Listen now what he has got up his sleeve: Any American Bee Journal subscriber buying $5 worth of supplies through the Domestic Beekeeper at catalog price, and sending along an extra dollar to pay for a year's subscription to the Domestic Beekeeper, will get in return a rebate check of $1, leaving the year's subscription to the Domestic Beekeeper absolutely free to you. Of course, if your order for supplies is larger than $5 you will have a correspondingly larger rebate check on your order. One of our subscribers got a rebate check on his order of supplies last month, March, of $40. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought through the regular dealer in beekeeper supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the Domestic Beekeeper. A word to the wise should be sufficient to cause you to send your next order for beekeeper supplies to the Domestic Beekeeper, Northstar, Michigan.

## ROCKY MOUNTAIN HONEY PRODUCERS

We carry a full line of Honey Containers and Bee Supplies. Two five-gallon Honey Cans in Shipping Cases---Export Cases---$1.55; Domestic Case, $1.45. The Cans quoted have a 3-inch screw cap. Both Cans are strongly made, with heavy partitions.

Buy your new Extracting Outfit of us and save money. We have the most practical Capping Melter for commercial beekeeping.

Let us make you a cash offer on your Wax and Honey Crop.

**THE FOSTER HONEY AND MERCANTILE COMPANY**
**BOULDER, COLORADO**

## QUEENS QUEENS QUEENS

### GOLDEN AND THREE BANDED QUEENS

The demand for our Famous Disease Resisting, Honey Gathering Hustlers is greater than ever before. Untested, 90c; 50 or more, 75c each. Select untested, $1; 50 or more, 90c each. Tested, $1.75; select tested, $2. Virgins, 40c. All Queens by return mail, or soon.

**BOOK YOUR ORDER NOW**

**M. C. BERRY & COMPANY, Hayneville, Ala.**

## Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading

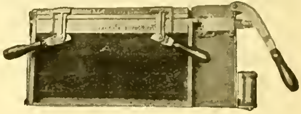
Send us your order for blank books and let us bind your magazines.

Following are prices of binding magazines:

| | |
|---|---|
| "American Bee Journal," cloth | $1.50 |
| Half leather | $1.75 |
| "Gleanings in Bee Culture," cloth | $1.25 |
| Half leather | $1.50 |

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**



PAT. JULY 30, 1918

### C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

### ATTRACTIVE CLOTHES

Do not make the man, but they add greatly to his appearance.

Just so with your honey. It must have quality, but should have a neat package and an attractive label.

We can furnish the label. In many sizes and shapes suitable to fit any container.

Write for our new price list of honey labels and stationery.

**American Bee Journal, Hamilton, Ills.**

# Crop and Market Report

Compiled by M G Dadant

For the July market report we asked our correspondents to answer the following four questions:

1. How is the honey crop compared to last year?
2. What honey have you on hand and what is the demand?
3. Have you had any contracts or prices offered for your 1919 crop? If so, what was offered for extracted? For comb?
4. What do you expect to realize for your crop of extracted? For comb?

## THE HONEY CROP

Although the reports are far from complete on all sections of the country, the prospects seem to be very favorable for a good crop of clover honey throughout the east and central west. The crop varies very much in different localities.

The clover crop, however, was short in many sections last year, and it would be very hard for it to be so short again this year. The New England States, New York and Pennsylvania, report a very fair crop so far, and Michigan, although hardly up to last year, states they will have a good crop. Parts of Iowa are very dry, and other parts are wet, and are hoping for dry weather to make a good clover flow. The same thing is true in Illinois. Wisconsin is better than expected, as is Minnesota.

The season now is probably ten days late in all this large section of the country, so that there are still good prospects for a white clover flow.

In the southeast, Georgia and Florida especially, the prospects and honey flow have been very good, probably a little better than last year.

Along the Missouri Valley the honey crop is coming along well, and is at least equal to last season. Texas has very flattering reports, varying from normal to 800 per cent of what was obtained last season. One or two small localities report a complete failure, but in most instances the crop will be extremely good, following several poor years.

The inter-mountain territory has not yet harvested any honey, but is looking for a normal crop.

In California the crop will be short, only yielding probably 75 per cent. Orange flow was good, but the sage crop is extremely short, and the total crop for California, although over 50 per cent, will be hardly 75 per cent of normal.

## DEMAND FOR HONEY

The demand is unusually weak in the local market this month. Of course this is natural, for the warm season and nothing else should be expected. One or two localities state that they are entirely cleaned up on honey and that there is a good demand from outside.

## CONTRACT PRICES OFFERED

There have been very few offers on honey for this year by the big buyers. One or two reporters stated that they had been offered a very low price, but refused to take it. Two or three others were offered 15 to 17c for white extracted, but were not willing to close at that figure.

A few reports come from California of sales at very reasonable prices to the beekeeper. A two-ton crop of orange honey sold for 20c a pound and a twelve-ton crop of sage at 19½c.

## PRICES EXPECTED

Practically in all instances the beekeepers are expecting a good stiff price for honey this year, and they should. Prices of other products have not dropped materially, and honey, unless it is extremely inflated at present, should not drop very low. Most of the reporters desire a price of about 20c for white extracted honey, although some state they expect to be offered only as high as 12 and 15c, with the price of $4.50 to $5 per case for comb honey. The highest price expected by any producer for comb honey was $6 per case f. o. b. shipping point. This is hardly commensurate with a higher price for extracted honey, and give the comb-honey producers the profit they should have.

One thing striking the writer is the absence of reports on comb honey; it would appear as if very little was being raised. If this be the case, there will certainly be a great demand for it, and it should command the highest prices.

## CO-OPERATIVE EXCHANGES

It is too early yet for the Colorado Honey Producers to make offers on honey, as their crop is not yet harvested, and they have no chance to sell. The Texas Association is offering its members on a basis of 16c for extracted honey, and 18c for bulk comb. Most of the beekeepers are satisfied with this price, although a few are holding off expecting higher prices, and several have stated that they are going to sell their honey locally at a better figure.

The California Exchange has quoted prices in car lots as follows: Orange blossom 18c, white and water white sage 17c, light amber mountain honey 14c, white amber alfalfa 11c. These prices are guaranteed against any decline on the part of the association up until September 1, 1919. This would signify that the prices as above mentioned are expected to be the very lowest, and that likely the Association will want to raise this price before the season is over. It is to be remembered that the crop out there is light, and since a large part of the honey which finds its way into the big markets comes from California, the action of this Association is not without a great deal of effect.

The Association has appointed three large commission firms to act as its agents in assisting it to market the crop.

## THE GOVERNMENT REPORTS ON HONEY

The monthly report of the Bureau of Markets for May 31, 1919, which is the latest we have, contains very much information on the movement of honey, and upon the prices obtained in the different markets. We urge upon our subscribers, wherever at all interested, to get in touch with the Bureau of Markets at Washington, D. C., and ask to be placed upon the mailing list to get the semi-monthly reports of honey arrivals and prices.

This report for May 31 contained, also, some very interesting information upon the kind of containers in which honey is shipped, and the condition in which it arrives upon the big markets.

Taking New York movement and prices as a criterion, it would seem that the honey price is going to hold up very well. New York markets show that western honey is selling at from 15c to 17c per pound, with a few sales at 20c. Porto Rican and Cuban honey is selling at from $1.25 to $1.50 per gallon, and white clover honey at 17c to 20c. This is, of course, for the old crop.

## EXPORT OF HONEY

The amount of honey exported from April 1 to April 20, which are the latest dates available, amounted to 591-000 pounds. Totals since last July 1 amount to 8,900,000 pounds. Again it would seem that the price of our honey depends considerably on the amount that is exported. With the coming of peace, the market could be brought to a point which will allow of considerable more export during the coming year than during the past one.

## SUMMARY

Taken all in all, the beekeeper should not be discouraged with the price of honey which he is to expect during the coming year. Of course, as stated in our last issue, the final conclusion will depend upon the beekeeper himself as to the price that he will obtain. We do not look for white honey to sell much below 15c per pound, nor do we think that it will reach a price of over 20c. It is possible that prices may be considerably lower than this, although we hardly expect it. It is true that big buyers are not now out after large quantities but likely they are cleaning up all old stock in preparation for the new.

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 5 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22,00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

# EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but **the difference in quality vastly more than compensates for the difference in price."**

**A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

# BEE SUPPLIES

¶We carry a complete stock of supplies at all times, and can make prompt shipments Our prices will interest you.

¶A trial order will convince you that our prices and goods are right.

**Send Us Your Inquiries**

**A. H. RUSCH & SON CO.**
**REEDSVILLE, WIS.**

# BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, $2; untested, $1.50. Price list free

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

## Golden Queens

After April 1, untested $1.25 each, 6 for $7, or $13 per doz. or 50 for $48. Also untested 3-band at same price; tested, $3 each, and my very best $5 each. Satisfaction.

**R. O. COX**
**Route 4, Greenville, Alabama**

**Don't stop advertising.**
because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 85c.
**American Bee Journal Hamilton, Illinois**

# WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

In making up rush orders we are able to make immediate deliveries by Parcel Post and Express of the following goods:

Friction Top Pails, 3, 5 and 10 lb. sizes.
5 Gal. Cans. All sizes and weights of Dadant's Foundation.
Comb and Extracted Honey, supers with and without inside fixtures.
One and two story Lewis Beehives, in flat, nailed and painted.
Most sizes of Root's Extractors.
Bingham Smokers and Honey Knives (including steam heated).
Lewis Sections, all Standard sizes.
Wire, Nails, Staples, etc.
Queen Excluders, all styles.
All lines of supplies you are likely to need in a hurry.

**THE DEROY TAYLOR CO., Newark, Wayne Co., New York**

We also promised the program of the State Meeting would be printed in this space this month. However, said program is not yet ready. The following people expect to be with us:

E. R. Root, L. C. Dadant, Dr. Phillips and Kenneth Hawkins, all very prominent men in the beekeeping world.

Special attention is going to be given to the problem of creating a demand for honey. Come and prepare to give this problem your best support. Everyone is welcome. Basket lunch at noon.

Program with directions of how to reach our place will be mailed on request, either by us, O. L. Hershiser, Kenmore, N. Y., or J. H. Cunningham, 303 University Place, Syracuse, N. Y.

There will be several demonstrations here on that day that will be bound to interest you. Come and bring your friends.

**Seamless Paper Containers**

THE MOST PRACTICAL AND ECONOMICAL CONTAINER FOR

**Honey**

Superior to any other single service container manufactured

Write for particulars and prices

**THE SANITARY PAPER BOTTLE CO.** Sandusky, Ohio
415 Water St.

**Golden Italian Queens**

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

PRICES OF QUEENS

| | Nov. 1st to June 1st | | | June 1st to July 1st | | | July 1st to Nov. 1st | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $8 50 | $15 00 | $1 50 | $7 50 | $13 50 | $1 25 | $6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Safe arrival, purity of mating and satisfaction guaranteed

No Nuclei or Bees by Pound

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

**QUEENS**

Quirin's Improved Superior Italian Bees and Queens They are Northern Bred and Hardy. 25 years a Queen-breeder

| PRICES | Before July 1st | | | After July 1st | | |
|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 |
| Select unte'ed | $1.50 | $ 8.00 | $14.00 | $1.00 | $ 5.50 | $10 |
| Tested | 2.00 | 10.00 | 18 00 | 1.50 | 8.00 | 14 |
| Select tested | 2.50 | 14.00 | 25.00 | 2.00 | 10.00 | 18 |

**BREEDERS**—The cream from our entire stock of outyards, $5 each. Usually we can send all queens promptly after June 10th.

Breeders, select tested and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

**H. G. QUIRIN, Bellevue, O.**

**BEE SUPPLIES**

Let Us Figure With You

Get our discounts before buying
Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
142 Grand Ave., Kansas City, Mo.

A BOOK FOR BEGINNERS

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

## Service and Quality

**Bee Supplies** **Bee Supplies**

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

**C. H. W. Weber & Company**

**2146 Central Avenue** **CINCINNATI, OHIO**

## MARSHFIELD GOODS

### BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality**; **best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road** **MINNEAPOLIS, MINN.**

## PORTER BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

## PRODUCE MORE COMB HONEY

**USE THE LOTZ ONE-PIECE SECTION** the kind that does not break in folding.

We manufacture millions of sections each year, and therefore can fill your needs at all times.

We also carry a complete line of other Bee Supplies. Send us your inquiries and we will be pleased to quote you our best price.

Our 1919 Catalog free for asking.

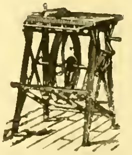
**AUGUST LOTZ COMPANY**
**BOYD, WISCONSIN**

## "QUEENS OF QUALITY"

The genuine "Quality" kind of 3-band Italians—bred strictly for business. Write for circular.

**J. IVAN BANKS, Dowelltown, Tenn.**

## BARNES' Foot-Power Machinery



Read what J. L. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

CYPRESS "THE WOOD ETERNAL"

S C M A
TRADE MARK REG. U.S. PAT. OFFICE

CYPRESS LASTS PRACTICALLY FOREVER

ALWAYS MAKE SURE THAT THIS TRADE-MARK IS STAMPED ON EACH PIECE OF

**"Tidewater" Cypress**

*"THE WOOD ETERNAL"*

THEN YOU BUY SAFETY (AND SATISFACTION) FIRST, LAST AND 'TWEEN TIMES

**"ALL-HEART" GRADE FOR BEEKEEPERS' USE**

**Southern Cypress Manufacturers Association**

ADDRESS NEAREST OFFICE

**1251 Hibernia Bank Building**
**NEW ORLEANS, LA.**

**1251 Heard Nat'l Bank Building**
**JACKSONVILLE, FLA.**

HIVES
FRAMES

**MADE RIGHT BEE SUPPLIES**
QUALITY SERVICE

SUPERS
SECTIONS

A COMPLETE LINE OF SUPPLIES

**THE KRETCHMER MFG. CO.,** Dept. A, Council Bluffs, Ia.

**HONEY, HONEY, HONEY**

We shall be in the market for any quantity, both comb and extracted. Mail sample of extracted and state price asked in first letter.

**Beeswax** always in demand. Cash or in trade.

"GRIGGS SAVES YOU FREIGHT"

**TOLEDO**

June is here and the big White Honey Flow with it. Don't get short of sections and foundation, the season promises to be good.

**Honey Cans and Cases**

Order these early, a limited number of second hand cans on hand at 75c per case

**GRIGGS BROTHERS CO.**
DEPT. 24 TOLEDO, OHIO

# REVISED EDITION
# NOW READY

So great was the demand for copies of the A B C & X Y Z of Bee Culture that the new 1917 edition of 15,000 copies is entirely sold out. A supply of books estimated to last a year were completely exhausted in six months.

## THE
## NEW EDITION

is greatly revised and contains 896 pages. It contains the very latest and most up-to-date methods, and is the leading authority of the world today on beekeeping.

## THE A. I. ROOT CO.

MEDINA, OHIO

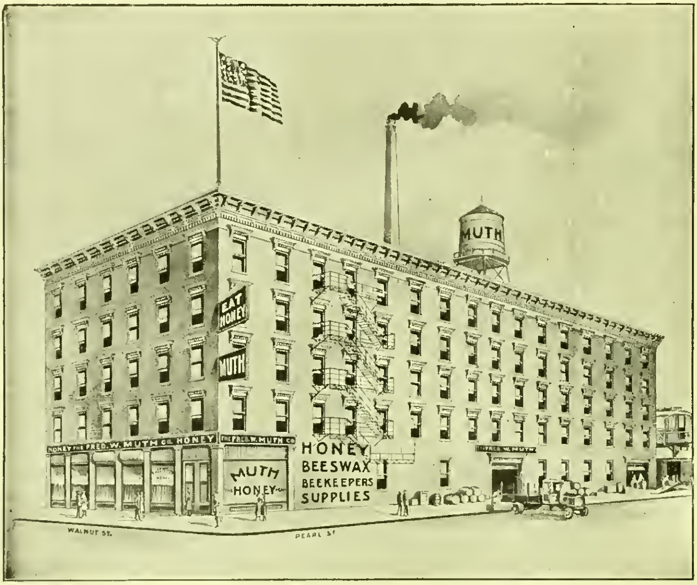
NEW YORK PHILADELPHIA CHICAGO
ST. PAUL INDIANAPOLIS NORFOLK
THE A. I. ROOT CO. OF CALIFORNIA
SAN FRANCISCO LOS ANGELES

# AMERICAN BEE JOURNAL

AUGUST, 1919

J. A. HARRISON'S APIARY, IN VENTURA COUNTY, CALIFORNIA.—Photo by Jay Smith

# Here's a Reproduction of Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

**LEWIS' BEEWARE**

**DADANT'S FOUNDATION**

**ROOT'S SMOKERS, EXTRACTORS, ETC.**

**OLD COMBS AND CAPPINGS**

Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

**THE FRED W. MUTH CO.**

Pearl and Walnut Streets
CINCINNATI OHIO

"THE BUSY BEEMEN"

# Four Bee Books
YOU SHOULD HAVE
IN YOUR LIBRARY

## First Lessons in Beekeeping
By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions
By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

## Practical Queen-Rearing
By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

## Langstroth on the Honey Bee
Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

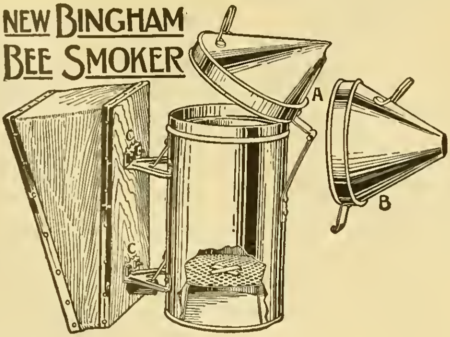
A full treatise on beekeeping. Cloth; 575 pages.

**Price $1.50**
Mailing weight, three pounds

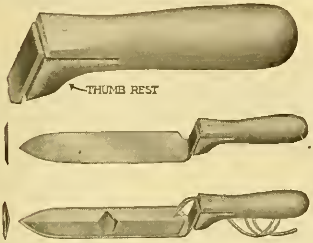
ALL FOR SALE BY
**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

---

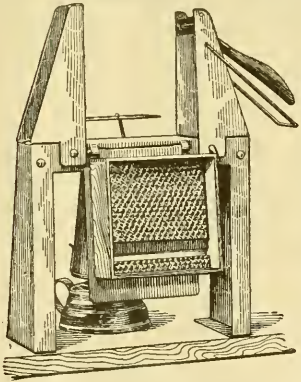
# NEW BINGHAM BEE SMOKER



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all important tool of the most extensive honey producers of the world. It is made in four sizes and has a leather bellows.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids, and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old-timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

The above specialties can be secured from us direct by post, or from practically all dealers and manufacturers of supplies, with the exception of the Root Company, and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

### TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
10-lb. Friction Top Pails in cases of 6.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60 pound Cans, giving quantity wanted.

**A. G. WOODMAN CO.**
GRAND RAPIDS, MICH., U. S. A.

"falcon" **BEE SUPPLIES** "falcon"

HIVES, SUPERS, FRAMES, SECTIONS, FOUNDATION
**In fact anything in the line of Bee Supplies**

Have you ordered your supplies yet for the season of 1919 which is now with us, or are you waiting for the last moment to come around when the supplies now carried in stock will be nearly exhausted, or the shipping department so busy that they will not be able to give you the quick service which you naturally expect? Just stop and think what would happen if all beekeepers would do this. To relieve the situation and to help conditions in general, get your order in at once.

We are prepared to make immediate shipments from our large warehouses, which were packed to the brim before the season started.

You all know what the **"Falcon"** line is, and you ought to know what the **"Falcon"** service is. If you never ordered from us before, better let us have the next order to convince you not only for once, but forever.

Send for the Red Catalog and "Simplified Beekeeping"

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Best Beehives Come From**

**SUPERIOR FOUNDATION EXCELS**
**READ THE FOLLOWING**

Superior Honey Co.,
Ogden, Utah.

Cushman, Ore., June 8, 1919.

Dear Sirs:

Your Foundation arrived O. K. I gave some of it and some of the other make (in full sheets) to a natural swarm. In three days the bees had Superior Foundation nearly full drawn, and some of the cells at top of frames were two-thirds full of honey, while the other foundation was not over half drawn out. The other foundation was purchased this spring. I surely would ask for no better article than **SUPERIOR FOUNDATION**, as it is a first-class article. Shall use some more in the next natural swarm and report further results.

Yours respectfully,
L. W. DERRIN.

Our machines are running to full capacity. We guarantee prompt shipments.

**SUPERIOR HONEY CO., Ogden, Utah**
(Manufacturers of Weed Process Foundation)

**The Diamond Match Co.**
(APIARY DEPT.)
MANUFACTURERS OF
**Beekeepers' Supplies**
CHICO, CAL., U. S. A.

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
**Apiary Department** **CHICO, CAL., U. S. A.**

**EARLY ORDER DISCOUNTS WILL**
**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**
**or J. W. ROUSE, Mexico, Mo.**

**MOTT'S NORTHERN-BRED ITALIAN QUEENS**

that resist disease well, therefore must be hardy, prolific, and hustlers; they are gentle. Untested, $1 each, 6 for $5.50, 12 for $10. Select tested, $2 each. Plans, "How to Introduce Queens" and "Increase," 25c.

**E. E. MOTT, Glenwood, Mich.**

# SELLING HELPS

Now is the time to advertise your product and establish your own market. Let us help you with suitable advertising matter

**Our Printing Plant** The American Bee Journal has established a printing plant in charge of an expert printer who devotes his entire time to speciality printing for beekeepers. We take pride in our ability to turn out the best work with prompt service.

**Labels** If you have not received a copy of our label catalog, send for one today. Attractive labels help to sell your honey. A good product in attractive packages will make permanent customers Our stock labels are the best in the market and we are prepared to furnish distinctive designs on special order for customers' exclusive use if desired.

**Supplies** Letterheads, envelopes, cards, tags, carbon sheets—everything in the stationery line for beekeepers use.

**Society Printing** Since there are weddings and parties in beekeepers families we are prepared to furnish latest styles in invitations, announcements, calling cards, etc., on order.

**A Specialty Shop** Ours is a specialty shop designed to serve the beekeepers needs exclusively. Our shop makes a special study of the beekeepers needs and guarantees your moneys worth or your money back.

For Quality, Service and Satisfaction in printing, write

**AMERICAN BEE JOURNAL**
**HAMILTON, ILLINOIS**

# 10% OFF

Beekeepers are justly proud of their honey crop. The sections are usually carefully cleaned and the comb surface admired, as the beekeeper wonders what the honey will grade. Then it is cased and sent to the broker. Too many times the broker takes "10% off," because the **cases graded lower than the honey.** Honey in Lewis cases always grades best. We have ideal facilities for selecting choice basswood for these cases. You get the benefit. Don't buy your cases until you get our quotation on your needs. It will mean dollars to you.

## OUR GUARANTEE

Every article is guaranteed. Your money back if you are not satisfied. If you purchase goods from one of our distributors this same guarantee holds good, as we stand back of our product.

### LET US HELP YOU TO MAKE GOOD

Have you been puzzled by some problem in your apiary this year? We welcome the opportunity to help you solve it. Address your inquiries for attention of our bee culture specialist. Get these valuable booklets postpaid at 5 cents each.

- "How to Start Beekeeping"
- "How to Manage Bees in Spring"
- "How to Prevent Swarming"
- "How to Buy Queen Bees"
- "How to Feed Bees"
- "How to Transfer Bees"
- "How to Care for Nuclei"
- "How to Unite Bees"
- "How to Locate an Apiary"

**SEND FOR A**
**LEWIS BEEWARE**
**CATALOG**
**IT IS FREE**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS U.S.A.
MAKES THE FINEST

**THERE IS**
**A DISTRIBUTOR**
**NEAR YOU**

**G. B. LEWIS COMPANY.** **WATERTOWN, WISCONSIN**

# AMERICAN BEE JOURNAL

VOL. LIX—NO. 8 HAMILTON, ILL., AUGUST, 1919 MONTHLY, $1.00 A YEAR

# WHOLESALE QUEEN-REARING

## Methods of a California Queen Breeder Who Rears Thousands of Queens for the Trade---By Frank C. Pellett

THERE is no branch of beekeeping that requires the exercise of so much skill on the part of the operator as queen-rearing. When conducted on the large scale which is necessary to make it commercially profitable as a specialty, the problems are multiplied. To rear a few queens during the honeyflow, when everything is favorable, is a simple matter, but to continue a uniform production, week after week during the entire season, is a different thing.

Under natural conditions, queen-cells are only built in preparation for swarming or to supersede a failing queen. Swarming cells are to be expected only when nectar is coming freely from the fields. The queen breeder must imitate natural conditions as far as it is possible to do so, in order to induce the bees to continue cell-building. The queen-breeder who has a location where a light flow of nectar continues for a long period of time is fortunate. Lacking the natural flow, the usual method is to resort to artificial stimulation by feeding a small quantity of thin syrup, daily, to cell-starting and cell-building colonies.

### Migratory Queen-Rearing

We hear much of migratory beekeeping and it is in California that migratory beekeeping assumes such proportions that it is the common practice of big producers. It has remained for a California queen breeder to adapt the practice to his own specialty, and migratory queen rearing may, in time, become popular.

J. E. Wing, of San Jose, is one of the most extensive queen breeders on the Pacific Coast, and probably the first to adopt migratory practice to the queen business. With a sudden termination of the flow at the home yard, he has found it possible to move his outfit a distance of 75 miles, to a point where a honeyflow was in progress, and continue operations without interruption. On one occasion, when the outfit was moved as shown in the photograph, a batch of 109 new cells had been given to the cell builders the day previous, yet 105 were nicely finished, in spite of the 75-mile journey.

M. G. Ward is the queen breeder who has direct charge of the operations, under Mr. Wing's direction, and Bevan Hugh, of British Columbia, is an assistant. The photograph shows Mr. and Mrs. Wing, Wing junior with Mr. Ward and Mr. Hugh.

At the close of the season, last year. Mr. Ward was turning out 1,800 queens per month, with 800 baby nuclei, mating better than an average of two queens each month from each nucleus. Since no queens are sent out till they begin to lay, there is not much time for replenishing bees, in these small mating boxes, from the new queens. This is provided for by means of a reserve supply of colonies in hives, with 17 baby frames. Combs containing bees, brood or honey are drawn from the reserve hives, as needed, and given to the nuclei.

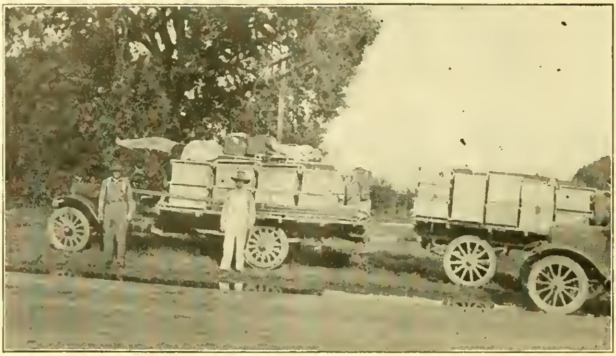
One of the worst objections to the baby nuclei, for mating purposes, is the difficulty of maintaining them. During the honeyflow they do very nicely, providing the queens are per-

Mr. J. E. Wing and family in center, Bevan Hugh at right, M. G. Ward at left mitted to continue laying long enough to keep up the stock of bees, yet are removed before the small hive becomes overcrowded. The Wing system, whereby the honeyflow is continued by moving to another point when necessary and supplying necessary bees or stores from other colonies, overcomes most of the objections to the small mating box.

San Jose is situated in the fruit district, where prunes are an important crop. Almonds, filaree and mustard bloom in February, thus starting the season early. Cherries, peaches, pears and apples, together with other fruits, guarantee nectar continuously until late in April. It is not regarded as a good locality for surplus honey, but a light flow, just sufficient for stimulation, is better for the queen breeder than a heavy flow.

In summer there is alfalfa, sweet clover, teasel, horehound and many other minor sources to keep the bees busy. As already mentioned, in order to prolong the season the bees are moved to the river bottom, for honeydew from willows, for late summer and fall. In California there is always something yielding sufficient nectar to keep the bees breeding, from February till October, if one goes far enough. If a breeder can prolong his season one or two months by making a move of 75 miles, he can afford to incur considerable expense to do so. Especially is this true of a concern which can turn out 1,800 queens in a month, as Ward did last fall.

The great difficulty with queen-rearing in the Northern States is the short season. In California, the breeders begin stocking nuclei in March and are running at full capacity by May, at which time northern breeders are just getting started. In the Wing location they count on a season of six to seven months, with five months to full capacity.



Wing's queen-rearing outfit on the move

**The Argentine Ant Pest**

The Wing yards are located in a region infested with the Argentine ants. In the December, 1918, issue of this journal is an extended description of the habits of this pest. So far, it has not become established to a serious extent except in a few localities in Alabama, Louisiana and California. It is so destructive to bees that the hives must be placed on stands beyond the reach of the insects. As will be seen by the illustration, Wing suspends his hive-stands from supports by means of wires. The wires are covered with crude oil, which must be renewed frequently. Under favorable conditions, it is not necessary to renew the oil oftener than once in two weeks, but in case of dust storms, more frequent oiling is necessary. If grass or weeds are permitted to grow where they touch the stands, the ants will soon find the way up and will attack the bees.

As to actual apiary practice, Mr. Ward, who has charge of the queen breeding in the Wing yards, does not depart very much from the usual methods. He dips his own cells, preferring them to those to be bought from supply firms. If there is time he gives each batch of cells to the bees a few hours before grafting, but in transferring the larvæ he uses no royal jelly. The fact that he is able to turn out 1,800 queens in a month's time indicates that he is able to get a large proportion of cells accepted. However, in order to get cells accepted without jelly, all conditions must be very favorable, and the colony in ideal condition. All cells are started with queenless bees and the following day are removed to be finished above a queenright colony. On the 10th day after grafting, all cells are caged or given to nuclei. To stock the nuclei in spring, a swarm box is used with two frames of brood. Bees are removed to another yard to prevent return to original location.

**Future of Queen Business**

Never in the history of the beekeeping industry has the future prospect been as bright as at present. The abnormal conditions caused by the world war have introduced the use of honey into thousands of homes where it had not been used previously, and hundreds of new markets have been opened for the beekeepers' product. If the beemen are active in organization and advertising, a good market at remunerative prices will be permanent. The expansion of commercial honey production makes such a demand for queens as never has been known before. Although every queen breeder in the land has increased his output and numerous new recruits have engaged in the business, still the demand for good queens has exceeded the supply. There is every indication that the queen breeder who sends out only good stock and gives his customers prompt service, will never lack for a market for his output.

So keen is the demand for queens that large producers can only be sure of getting a sufficient supply by rearing them in their own yards.

One of the Wing apiaries on platforms supported by wires coated with oil, to avoid ants

## Some Observations on Nosema-Disease

By G. F. White, Bureau of Entomology, Washington, D. C.

(Continued from July)

**Symptoms of Nosema-disease**

From what has already been said it is seen that weakness is one of the colony symptoms of Nosema-disease. When a sufficiently large number of the bees of the colony are infected and the infection persists for a sufficiently long period, weakness will inevitably result and become apparent. On the other hand, when only a small number of bees are infected, or the infection persists for a short period only, the weakness resulting passes unobserved. The loss in strength is more often gradual, but may be quite sudden.

The diseased bee, as to its outward appearance and general behavior, is not particularly unlike the healthy one. The infected workers carry pollen, honey and water, and at the entrance of the hive cannot be distinguished from healthy ones. It was found, from experiments carried on during the fall and early winter, that the cluster of heavily-infected colonies was easily disturbed, and when disturbed, the bees ran badly.

As a rule, the stores in a Nosema-diseased colony are sufficient. The queen does her work well, and when the colony dwindles and dies out she is usually to be found among the last handful of bees. The brood is normal in appearance, but is frequently in excess of the amount that can be comfortably cared for.

Sooner or later the stomach of the diseased bee invariably furnishes positive evidence of the presence of the disease. Usually by the end of the second week, following the infection, the organ becomes lighter in color. It is also somewhat larger, softer and more easily torn. Late in the disease its size is about that of the healthy stomach and it is almost white. This colony symptom is the most valuable of all and furnishes positive evidence of the presence of Nosema-disease.

The spotting which characterizes dysentery is absent, and the trembling that is frequently described for one, or possibly more, abnormal conditions of bees, is not a noticeable symptom of the disease. While not infrequently there are more dead bees on the ground in front of a hive housing a Nosema-diseased colony than a healthy one, a heap of bees, such as is so often found in front of hives where paralysis is present, seldom, if ever, occurs in Nosema-disease. In experiments conducted in the fall and early winter, more dead bees were found on the bottom-board, in case of inoculated colonies than uninoculated ones. The crawling and climbing tendency of bees, described as symptoms in some bee troubles, does not characterize Nosema-disease.

### Adult Workers, Drones and Queens Susceptible to Nosema Infection

After a colony, free from the disease, has been fed syrup to which the parasite (**Nosema apis**) has been added all, or practically all, of the workers of the colony become infected. When there are drones, in the colony, they also become infected in a somewhat similar proportion. When queens from such colonies are examined they, too, are sometimes found to be infected, but frequently they are not. From observations thus far made, infected queens are less likely to be encountered during the active brood-rearing season than at other times of the year. In the experience of the writer, no Nosema-infected drones were found except in colonies in which the disease was produced by artificial inoculation. It is interesting, also that the old, shiny bees in nature were not found infected. That they are susceptible, however, to infection, was demonstrated, as was done in the case of drones, by experimental inoculation.

### Brood Not Susceptible to Nosema-Infection

Studies were made of the brood in experimentally infected colonies, and in no instance were infected larvæ found, either worker, drone or queen. The pupæ, likewise, upon examination, were always found to be healthy. Young bees emerging from the brood-comb were invariably free from infection.

### Length of Time an Infected Bee Lives

It is not known positively whether a Nosema-diseased bee ever recovers from the disease. Some of the observations suggest that now and then a worker recovers from the infection. If this ever occurs, it is decidedly the exception, for they usually die. It should be emphasized here, that a bee does not die of the disease soon after becoming infected, but lives for a relatively long period. As the length of life of healthy queens, workers and drones, respectively, is different, so it is to be expected that the period of life of infected ones will also be different. Infected queens will probably live longer than infected workers and infected workers will live longer than infected drones. That the age of the bee at the time of infection will determine to a certain extent the period it will live, is evident from the nature of the disease. That the season at which infection takes place has much to do with the period a worker infected with **Nosema apis** will live is also evident from the nature of the disorder. Infected during the more active bee season, a worker will live longer, other things being equal, than if infected during some less active season. During the winter season, at least, the strength of the colony to which an infected worker belongs, and the percentage of diseased bees present, probably have something to do with the period the worker will live. Observation made on medium-sized colonies, inoculated late in the fall, showed that most of the workers live more than 2 months, but less than 3. During the summer most of the infected ones die in less than one month.

There is considerable evidence to indicate that queens are not as readily infected as are the workers. This seems to be true especially during the more active season. Among the queens taken during the active season, from experimental colonies in which a heavy infection among the workers had been produced, as the result of inoculation, rarely have infected ones been found. There is some evidence, also, that queens, under favorable circumstances, may recover from Nosema-infection. A careful microscopic study of queens from infected colonies, made during the less active season, showed some free from infection, others heavily infected, and still others with only a slight amount of infection.

It will be seen that the question, relative to the period an infected bee lives, is dependent upon many factors and that considerable data must yet be obtained before statements of a more definite character can be made.

### Length of Time the Germ Lives

After the germ of Nosema-disease is voided from the alimentary tract it invariably dies unless it is taken up by some other bee. The same is true of the germs in the body of bees that die of the disease. They do not die immediately, however, but live a variable length of time, depending upon the environmental condition. The question relative to the period the parasite will live when subjected to heat, drying, sunlight, fermentation, putrefaction and freezing, respec-

M. G. Ward grafting cells

tively, was the subject of a considerable number of experiments. The periods it will live in honey, in pollen, and when in the body of dead bees, were also subjects of study.

The approximate period the germ (**Nosema apis**) remains alive, in each of the various environments, respectively, is as follows:

Suspended in water, the germ was killed at a temperature of about 136 degrees F., in 10 minutes.

Allowed to dry outdoors, in an empty hive- body, it was dead in about 2 months. Drying at room temperature, it lived about the same length of time.

When dry and exposed to the direct rays of the sun, it was destroyed in from 15 to 32 hours.

In honey, and exposed to the direct rays of the sun, it was usually destroyed by the heat acquired by the honey during the exposure.

In a 20 per cent honey solution, fermenting at outdoor temperature, it was destroyed in about 9 days.

In a putrefying suspension, at outdoor temperature, it lived more than 3 weeks.

The germ withstood more than one freezing in water. How often it will withstand freezing and thawing has not been determined, and likewise the length of time it will live frozen in ice is not known at the present time.

In honey, at room temperature, the parasite lived from 2 to 4 months.

Mixed with pollen, it dies, but lives somewhat longer than when allowed to dry in an exposed environment.

The germ lived in the body of the dead bees, at room temperature, about 4 weeks, at outdoor temperature about 6 weeks, and at icebox temperature about 4 months.

In the body of dead bees lying on the soil, in the open, but somewhat protected, it lived from 6 to 10 weeks.

The temperature is a factor in the environment which has much to do with the period **Nosema apis** will live.

### Spread of Nosema-disease

Naturally the problem of the spread of Nosema-disease could be completely solved if it were possible to follow the germ (**Nosema apis**) in nature, during the period it remains alive and outside the living bee. Unfortunately this is well-nigh impossible. Much can be done, however, and already some important determinations have been made. From the studies made, it has been possible to separate the modes of transmission which are most likely from those which are not so likely.

By feeding colonies syrup, to which the germ was added, it has been shown that Nosema-disease is produced. The same is true also if water, to which the parasites are added, is given to bees. Nosema infection of bees takes place, therefore, by way of the alimentary tract. This fact is especially important in estimating the probable source of infection, in Nosema-disease.

For purposes of discussion, the problem of the spread of the disease may be classed into 3 subdivisions—the transmission (1) from the diseased apiary to the healthy one, (2) from the diseased colony to the healthy one in the same apiary, and (3) from the diseased bee to the healthy one in the same colony.

The question of the spread of Nosema-disease from apiary to apiary, and from one section of the country to another, cannot have the same interest to American beekeepers as does the question of the spread of the foulbroods. This is true because Nosema-disease exists already, it may be said in a general way, in all sections of the United States, and furthermore, it probably has had this wide distribution for centuries. From the facts which have been established regarding the period the germ lives in the different environments in which it is likely to be present, the beekeeper is enabled to estimate, with some degree of satisfaction, the likelihood of the germ being transmitted from one apiary to another and producing disease.

That infection, from one colony to another, occurs is certain, but the exact means by which it takes place is not entirely known. In the experimental apiary the diseased colonies had free access to the flowers of the fields, as did also the healthy ones. In none of the many experiments that were made, from 1912 to 1916, inclusive, did Nosema-disease appear in the uninoculated colonies during the active bee season. If it were at all likely that Nosema-disease is transmitted by flowers, to an appreciable extent, there would have been a different observation to report in this connection.

Experiments were made, in which brood-frames from Nosema-diseased colonies were inserted, during the active bee season, into healthy ones, after they had remained out of the hive for a variable length of time. Others were taken immediately after they were taken from the hive housing a diseased colony. In no instance did Nosema-disease appear to any appreciable extent.

(To be continued)

HARRIS & EWING
WASHINGTON, D.C.

Dr. G. F. White, an eminent bacteriologist and the author of several Bulletins of the Bureau of Entomology, was the first bacteriologist to describe the two kinds of foulbrood, bacillus larvæ and bacillus pluton. His descriptions of the bacilli of foulbrood are accepted in both hemispheres as correct

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

| | |
|---|---|
| C. P. Dadant | Editor |
| Frank C. Pellett | Associate Editor |
| C. C. Miller | Questions Department |
| Maurice G Dadant | Business Manager |

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

## Preparation for Winter

Hardly seems appropriate to urge now the preparation of colonies for winter. But good, vigorous queens soon will mean a strong lot of bees to start in the winter.

If there is a honey dearth and bees run short it may be necessary to feed to keep up breeding or even the best queen will fail to fill the hive with plenty of bees for winter.

Remember that the three requisites for successful wintering are plenty of good stores, a large force of young bees, and sufficient protection. We can give the last one of these later on, but the first two must be in preparation before fall comes.

## Now is the Time to Requeen

It is always time to requeen if queens are available, and if your colonies are deteriorating on account of lack of new stock.

But in the spring, when conditions would be most favorable for observing the colonies and finding the worthless or poor queens, it is not always possible to get the queens from the breeders in the South, and the danger of loss in the mails is greater.

For these reasons probably a large proportion of beekeepers requeen in the summer. It is best, of course, if possible, to keep close tab on your colonies as to honey-gathering qualities, disease-resistance, gentleness, etc., and then breed from your best stock by one of the best methods.

But many otherwise good beekeepers keep no accurate tab on individual colonies, and many more do not care to enter upon queen-raising. These may profitably requeen by buying their stock.

How old should a queen be before she ought to be replaced? Usually not over two years old. Most large beekeepers agree that a queen after she has passed her second season of prolific laying is apt to decline, and either the next fall or spring become worthless. Nor can she be judged by the work she is doing now, what she will do in three weeks from now, or two months.

We would advise, therefore, general requeening every two years unless it is desired to keep the best stock for experiment or for breeding purposes, and this is especially true for the beekeeper who does not keep accurate records.

## Queen Breeders Catching Up

After one of the wettest springs, a condition which is not conducive to best results in getting out capacity orders on time, the queen breeders are at last catching up on orders.

Many reliable breeders have had to disappoint customers simply because they took orders up to their capacity and found themselves at the last moment unable to fill such in time on account of the weather.

## Watch for Moths in Extracting Combs

The careful beekeeper will not let the moths infest brood-combs on which the bees have died during the winter. He will either place these in the care of a strong colony, make divides into them, or thoroughly fumigate to kill the moths.

He is apt, however, to rely on the cold winter having destroyed all moth in his extracting house and consider his supers immune. Usually they are. But we must be prepared for the unusual.

Our suggestion is that such combs as are not used on the hives before midsummer, owing to shortage of crop, be gone over every two weeks to make sure moths have not made their appearance.

"An ounce of prevention is worth a pound of cure." A little disulphide of carbon on a rag on the top of each tier, carefully covered, is sufficient.

## An Anzac in Hamilton

A bright young Australian, John H. Rosser, from near Brisbane, passed through Hamilton recently on a visit. He is 26 years old, served in a regiment of Australians at Le Cateau, and came to America on his way home. He is an active beekeeper, has been a subscriber of the American Bee Journal for 10 years and concluded to make a tour of the world while away from his native country. He reached Europe through Egypt, the Mediterranean and Italy; then, after the armistice, went to England. There he embarked for the United States. In New York he bought a motor cycle and started westward, visiting beekeepers on the way. He left us June 21 for Des Moines. From there he went to Denver, thence to San Francisco, where he expects to sail on August 12 for his home country, after visiting Hawaii. He will reach home just in time for their spring work, which begins in September. That month is to them the same as March is to us, with the only difference that they live in a warm country with but light frosts in the coldest July weather. Being at the antipodes, they have winter while we have summer.

## Honey Prices

I really believe honey prices for the coming winter are worthy of an editorial.

Our untiring friend, Dr. Bonney, who still seems to have the eagerness of the cowboy that he used to be, writes us, enclosing printed quotations of the Montgomery-Ward Co., at Chicago. These quotations offer honey in 60-pound cans at $16.25 and in gallon cans at $3.70. They also offer maple sugar at 42 cents the single pound. Here is the doctor's letter:

My Dear Mr. Dadant:

I attach clippings from a catalog "of July-August" just at hand from Montgomery, Ward & Co, **and the customer pays the tariff.** I am now inclined to start prices at 25c a pound locally, and 30c by parcel post. That would mean $3.60 the gallon, cheaper by 10c than the mail order house list, but really less by nearly 3c a pound, with the postage paid.

Might I suggest that you touch on this editorially, using the slip about maple sugar at 40c a pound to fortify an argument for good prices of honey?

White clover flow short. Too much rain, and the clover is not, even now, when the weather is dry, yielding as it should. There will be, I think, a short crop in Iowa.

Truly,
A. F. BONNEY.

The doctor appears to use sound reasoning. Let us not undersell each other. Everything is high, whether in the line of food or in the other lines—clothing, building material, etc.

Some of our friends accuse the "profiteers" of causing the high prices. We believe that the cheapness of money is at the bottom of it. Is the farmer a profiteer because hogs are 20 cents per pound, cattle 16 cents and corn $1.80? Everything is on the same scale. Labor has advanced and is not likely to go back to the old schedules for a long time, if ever. The only man who loses on these advances is the one who has a specified income based upon money at interest. That item has not yet raised, neither is it likely to raise. So there is no reason why the honey producer should not get at least twice as much for his honey as he used to get.

## Dr. Arthur H. McCray

Dr. Arthur H. McCray, whose death was mentioned in the July number, was one of the scientists who helped diagnose bee diseases. In our account of the work undertaken at Washington, by the Bureau of Entomology of the U. S. Department of Agriculture, we gave, in February, 1916, a description of the work of Dr. McCray, as bacteriologist in the examination of samples of diseased brood received from beekeepers in all parts of the country.

This, however, is not the only work due to this eminent worker, on subjects that interest beekeepers. Dr. McCray, in connection with Dr. G. F. White, wrote Bulletin No. 671 of the Bureau of Entomology on "The Diagnosis of Bee Diseases by Laboratory Methods."

More recently Dr. McCray had been State Bacteriologist of Montana, and while thus engaged carried on investigations on Rocky Mountain spotted fever. He contracted this disease during his studies and it was the cause of his death. He was therefore a "martyr to the cause of science," and we should regret his death the more on that account. True courage is not only in fighting an enemy face to face. Many a scientist has lost his life in seeking to remove disease or prevent its spread.

The Evening Star, of Washington, D. C., had this to say about Dr. McCray's death:

"Dr. McCray, who was conducting experiments to isolate the germ of spotted fever, became infected while dissecting the carcass of a guinea pig, developed the disease, and after a prolonged fight for life, succumbed. High tribute to the memory of the physician was paid by Governor Stewart and state officials, among them the state doctors with whom Dr. McCray had worked.

The late Dr. A. H. McCray

"Dr. McCray was born at Reynoldsville, Ohio, 38 years ago, and was married in Washington in 1915, to Adele Wilson, superintendent of the nurses' school at George Washington University in that year. He served as a lieutenant in the Medical Reserve Corps during the war."

## Queen Breeders Versus Queen Buyers

No season yet, to our knowledge, has caused so much dissatisfaction between queen breeders and purchasers of bees, as the one just ending. We bred queens for sale ourselves, years ago, but soon decided that the breeding and selling of queens was injurious to a man's peace of mind. So all the queens that we have handled in the past 30 years have been produced by others. We are therefore well situated to give a curtain lecture to both buyers and sellers.

Queen breeding is very much like the raising of cabbages or melons; that is to say, we have to depend a great deal upon the season, the moisture, the sunshine, the absence of parasites, etc. We might promise melons for a certain date and find ourselves unable to supply them, even after great exertions.

The queen breeder has many obstacles to surmount. He is not always able to sell his entire output, and it is unusual for him to secure orders early in the season, for as large a number as he can fill. We therefore do not hold it much of a sin if he accepted more orders this year than he is sure of being able to fill. On the other hand, he should consider the customer's money as not earned, and therefore not his own, until he has filled the order sent to him. He must put himself in the customer's place and decide that the only way to retain his credit and do the fair thing is to refund the amount of the order, whenever it is demanded if unable to fill a promise.

The customer, on the other hand, must recognize the fact that queens are not kept in a bushel box, ready to be sent on 5 minutes' notice. If he has sent his order early, with the conditions and date of delivery well stipulated and agreed upon, he has a right to expect the goods or the money back, even though it may be a hardship on the breeder. But how many customers send money for a queen, to be delivered **by return mail?** Of course the man who pays his money and to whom the offer has been made to fill an order by return mail has a right to expect it. But in many cases beekeepers do not even enquire whether the breeder is ready to fill an order. They send the money, and their ire is aroused if the queen does not promptly arrive. Some even make the mistake of removing and killing the queen which they wish to replace, on the day upon which they send their order. And let us state here that this is the very poorest way to succeed in queen introduction, even if the queen should come without any postal delays

One more word. When queens are lost in transit, it is usually the shipper's loss. The consignee has therefore bad grace in being angry at the loss which he often charges to the shipper's ignorance, when it may be due only to circumstances beyond his reach. Shortage of weight of bees by the pound is often due to wear and fatigue in transit, and a nice lot of bees at the start may look very poor on delivery.

The American Bee Journal will not knowingly accept advertising of unreliable breeders, but it hopes that the customers will entertain charity for the unsuccessful efforts of hard-working queen breeders, when the season is against them.

# AUSTRALIA, THE BEEKEEPER'S PARADISE

By Tarlton Rayment, Author of "Money in Bees," Etc.

(Copyright by the author)

## West Australia

The great commonwealth of Australia has often been described as a land of "magnificent distances." So it is; it is so far removed from the home land of most of its original settlers that it is "down under" or, to use another term, it is the antipodes, and far too vast to attempt anything descriptive in less than six chapters. "Why six?" Well, there must be a limit somewhere, and since the largest star on our national flag has six points—one for each State—we have decided to give a point likewise to each of them. To avoid all interstate jealousies we propose to deal with them in geographical order, and should we degenerate into the vernacular, as most "Aussies" are prone to do, the appropriateness of the designation will be our chief excuse.

What a scintillating cluster is the Southern Cross. West Australia, South Australia, Victoria, New South Wales, Queensland, and, we almost forgot the "Apple Garden"—Tasmania. Unlike the Poet who went from east to west, we go the reverse, west to east. So here goes "The West."

It's a very wonderful country, immense, rich, pleasant, healthy, new. Its chief features are coastal forests of mighty Eucalyptus trees that rival the giants of America. The other great division comprises the gold country, yes, it has miles and miles and yet more miles of open plain country, baked under an ardent sun. Now don't jump to conclusions, the plains may prove a veritable flower garden. "Good for bees?" No one has tried it, but a kinsman who has traveled the interior tells me that he rode for days, and long days, too, through apparently unending beds of red "everlastings," then just as suddenly the color of the flowers appeared to change, and mile succeeded mile of white "everlastings," then yellow, and so on, until the whole affected one like the changing tints of some kaleidoscope. But my kinsman was after the gold that men dig for in the bowels of the earth, so the glory of the golden flowers did not receive its due. And there's not much water there, though "The West" possesses one of the most remarkable pipe lines in the world, for it is by pipe that water is conveyed to one of the great inland mining towns. It's "some" tube.

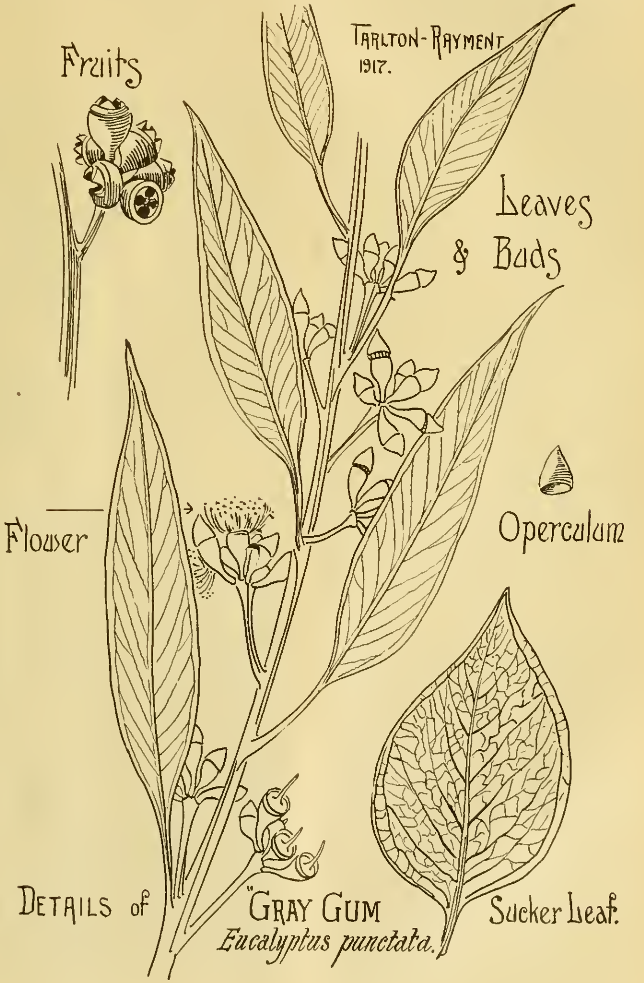
But we've strayed too far, or perhaps not far enough, for away to the northwest of the State are great cattle runs, and since the conditions are somewhat similar to those of the "Never Never," as the northern portion of South Australia is often called, we will deal more fully with the flora under the heading of that State. On the coast that borders the Indian ocean, pearl fishers pursue their enthralling quest to the accompaniment of sudden squalls that toss the tiny craft clear of high water mark or else, as the Germans say, "spurlos versunken," sunk without a trace.

Wist a moment. We have our magic pen.

First, a subtil fragrance steals through the forest air. It is delicate, yet insistent. "Chop—Chop—Chop—Chop, the rhythm of the axemen's blows provide the music of the bush. The sharpened steel rings as it cleaves the forest's boles; with a swishing roar the lofty giants hurl down deep into the world of the forest floor and through a million waving stalks of the richly perfumed boronia. The scent gets overpowering, yet the bushmen toil at the "Jarrah," or "Karri" logs that the mills may be fed. Do the gum trees "Jarrah" and "Karri" (*Eucalyptus marginata*) and (*E. diversicolor*) yield honey?

Yes, but it is strong-flavored and dark; but there are other "gumtrees" that yield heavily, while the quality is excellent, the "Yate" tree (*E. cornuta*) especially.

In spring there is the ubiquitous "Cape weed" (*Cryptostemma calendulaceum*) to gild the fields and the pockets of the apiarists, while nearer the south there are the glorious crimson-



The "Gray Gum" Eucalyptus

flowered "Red Gum" (*Eucalyptus calophylla*) "Flooded Gum" (*E. rudis* and *E. decipiens*), West Australian "Blue" Gums (*E. megacarpa*) and hosts of other plants too numerous to name.

Yet there are few beekeepers in "The West." Generally spoken of as a dry climate, in the coastal areas the wet is the chief drawback.

It is a young country, very young, indeed; but it has immense possibilities before it, and, as we have already remarked, it is, in the main, untouched, from the apiarists' standpoint. The climate is refreshing and most who have visited "The West" either on business or pleasure, desire to return again. Its vastness is difficult to comprehend, but that very extent holds out promise of prosperity for the hundreds of thousands who must eventually reside there.

(To be continued)

## Control of Swarming for Comb Honey

By F. R. Smythe, D. V. M.

WHILE claiming no originality for this method, it being the culmination of the various technique used by Doolittle, Geo. W. Stephens, Dr. Miller and many other unselfish beekeepers, which I have sifted out of their numerous articles in the last twelve years, plus a great many experiments, I submit it to the beekeeping fraternity for what it is worth, hoping they can suggest some improvements.

Being employed by the U. S. Government as a Veterinary Inspector, and not having much time to devote to the bees, I was compelled to adopt some plan to control swarming in the production of comb honey, and after trying a great many methods, I have adopted the following:

During fruit bloom (if in single story) put on full depth hive-body with full drawn combs **above** on all **strong** colonies; if not strong, unite so they will be (if in two-story put top body on bottom, and bottom body on top), as the kind of colonies I keep will, in this locality, swarm during fruit bloom, even if they have four full-depth bodies, if I leave the brood on top till it becomes congested.

Just before the main honey-flow put top body down on side, after preparing two bottom-boards by cutting a space ⅝x5 or 6 in. in one side of each, equal distant from each end; tack piece of queen-excluder zinc on one of the openings.

Put best frames of sealed brood in this side body, place queen and other frames (be sure to have some unsealed brood) on old stand, put two-comb supers on with bait sections in top one. Close front of side brood-chamber. Put on Excelsior or Ventilated gable cover on side hive, but give ventilation by raising back and top of side brood-chamber about one-eighth or three-sixteenths inch with a strip of section or small wedge.

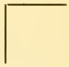
About every 10 to 14 days switch brood to side hive. I generally take the three outside frames from the side hive, then put two frames from parent hive into side, then as I take one from side hive I put one from parent hive, of course keeping lookout for queen, putting her back in parent hive with frame she is on if it contains, as it usually does, unsealed brood. If the queen has run over and is on a sealed frame, I stand it to one side until done, then shake or brush on top of frames of parent hive. If running for extracted, put on excluder, if for comb no excluder is necessary.

This plan was perfected for comb honey production, but is worth while in running for extracted.

This method will, in this locality, absolutely prevent swarming, give 50 per cent more comb honey and of better finish, 100 per cent increase if wanted, after having the use of an extra strong colony for honey production; no nuclei to fool with other than queen-mating nuclei. I am working on a scheme to raise queens in this side hive.

**Important Suggestion Derived From Experience**

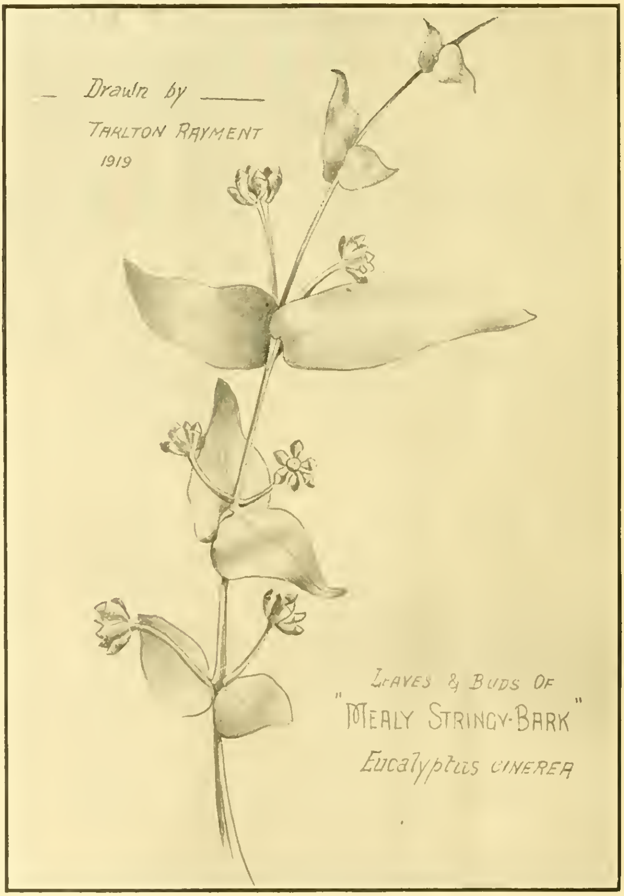
1. Have good, substantial hive-stand wide enough to hold two hive-bodies; be sure to have it level sideways and see that it does not sag in the center to leave space for bees to get out.
2. Bend excluder zinc thus:



and tack well inside and on top of side strip of bottom-boards after cutting out so zinc will go down flush with side of bottom-board.

3. Put excluder zinc always on the same side, right or left, so as to have them standard.
4. Stop entrance of side hive so bees will have to go through parent hive.

By putting comb in body you put above, and plenty of honey in lower body, the queen spreads the brood-nest upward and the bees in carrying the honey above for brood-rearing stimulate the same as a heavy honey-flow. I generally see that they have at least four Langstroth frames



The "mealy Stringy-Bark" Eucalyptus of Australia of honey in lower body (more will do no harm), two on a side.

If I want increase, after the main flow, or a few days after making last transfer, I generally make two. If I make increase three, the last one about August 1, set side hive on new stand and give, after two days, a ripe cell, or better, a laying queen.

In my opinion the primary cause of swarming is a preponderance of young bees in the brood-chamber.

Have young, prolific (not over 2 years old) queens from a gentle strain of Italians.

This method requires some work (not as much as cutting cells, and no sulking by the bees), but will produce more returns from a small apiary than some of the larger ones I know, this being especially desirable at this time of food scarcity.

And in this locality absolute control of swarming.

Cincinnati, Ohio.

## Honey Selling

By Edward Hassinger, Jr.

WITH honey producers organizing as they are, it seems that honey advertising should be conducted along an organized line; that is, advertise honey in general with illustrated and printed placards, telling how to use honey to flavor and sweeten ice cream, all kinds of berries, salads, cold and hot drinks, and in fact any food that needs flavoring and sweetening. These placards should be made short and to the point, such as:

FLAVOR and SWEETEN
ICE CREAM
HONEY

A special one for ice cream parlors could be something like this:

Try our
HONEYBEE HONEY
SUNDAE
IT'S DELICIOUS!

Every ice cream parlor and soda fountain in the country should have two such placards in view, and honey with a good flavor supplied on trial if necessary, for each place.

Every grocery could have one like this:

FLAVOR and SWEETEN
BERRIES and SALADS
WITH HONEY.
We sell it.

The placards could be printed by some company interested in placing honey before the public, and print them as reasonable in price as possible; then advertise them in the bee journals, and supply manufacturers could also list same in their catalogs.

State and County Beekeepers' Associations could spend all surplus funds for such placards and buy them in large quantities and distribute to the individual beekeepers for distribution, or have one or more of the officers of a local association assigned a certain territory to distribute the placards.

Special placards could be gotten up for schools in connection with bulletins teaching the value of honey and its uses in cooking and baking.

Suppose the editors of the American Bee Journal and some advertising specialist agree on the proper words to use and then thoroughly advertise the proposition to bee-keepers and take orders with the understanding that if the orders are large enough collectively to warrant printing same in large quantities, then same would be printed and orders filled.

Hortonville, Wis.

## A Few Reasons For Keeping Records

By Florence B. Richardson

WHY is it that more beekeepers do not keep records? How do they know the lineage of a queen in a certain hive?

All these things are definitely known only when true records are kept. Many say, "Oh, I don't have the time to fuss with that kind of business; but the same person will find the time to "fuss" with a colony whose former record, if on file, would tell that it would never make a producer. The time thus spent could be made much more profitable if employed in the business of record keeping. The beauty of it is that there is no necessity for guess work. When one has only a few colonies it is easy to keep the performances of each one in mind without the use of pen or pencil; then, too, there is an enthusiasm which does not allow one to forget. When, however, the number of colonies gets to the point where it is a business instead of a hobby, there is something more to remember, and the aid of a record is a decided advantage.

EAT
Queen Quality
HONEY
PRODUCED & SOLD BY
H.E.ROTH DENVER IA.

The small honey sign is the cheapest mode of selling honey locally

The field notes may be only the sketchiest, but if interpreted after the day's work is done, there need be no mistakes. A small block of paper that will fit into the ordinary overall pocket is really the handiest, as after the work of the day is completed the leaves can be torn off, taken to the house and transcribed in a few minutes, while the block remains in the pocket to be used the next time it is needed. A short stub pencil attached to the operator with a string is the handiest arrangement to save hunting for it when in a hurry.

The bee business is, today, more than ever before, receiving attention from all classes of people, and if a business is worth going into at all it must be run on a business-like basis. We would think it sheer folly for a man or a woman to go into the dairy or poultry business without keeping records. Not only general records, but itemized records of each individual or pen. Why is it not as necessary to know the exact value of our colonies of bees, not only collectively but individually? If we have a cow or a hen who is not paying her way or is diseased, do we tolerate her? Certainly not. We either sell her or bury her. With the bees we do not have to use such extreme measures, for it is generally possible to introduce new blood from a high-producing colony and within a reasonable length of time have a greatly improved colony where there might have been an empty hive.

An outbreak of disease can be checked much sooner and with more surety if the record of the colony is known, and there is also less danger of leaving a colony to its own devices, if a record is kept, as in going over a colony's work the time since the last overhauling will be noticed and a special effort made to check up on it soon.

A small card index can be purchased for less than two dollars a set of cards, lined to receive entries and cut to fit the box, also a numbered index can be bought for a small additional sum. More cards can be added at any time and the records are continually on file. A few minutes' time will fill out a card, either on a typewriter or by hand. The initial expense is small and the ultimate results are large.

In a well regulated apiary there are two sets of these records, the ones at the yard and the one in the card catalog or other systematic holder. The set at the yard may be on cards strung on a heavy string or wire, which can be attached to the cart or other carrier of tools in use. If strung in order, this form of record is simple and convenient to use, as a leaf at a time is turned, like a calendar. Some people keep a sort of record of queenless colonies, yet none after the colony is in good working order again, while others simply mark the hive so as to watch it during the requeening process (if they don't forget.)

I believe everyone who keeps records has a code all his own, as every little while we hear of someone who has at last perfected a system of quick notation which is quite the finest thing that has ever been used. There are a few signs used by everyone and a code of any kind is only good if it can be read after it is—maybe not quite cold, but at least lukewarm.

A few of the most used terms, abbreviated, read: ex. bd. for excluder-board; brd. for brood, fr. for frame or frames, ql. for queenless, col. for colony, div. for division or divided, ext. sup. for extracting super, hv. for hive, bb. for bottom board, cv. for cover, e for eggs, l for larvæ, foun for foundation, hon for honey. Various combinations are made with the characters, but when put onto the final card almost all words are written out in full. A card in the little catalog would read something like this:

1918. Colony No. 15.

May 2—Gave excluder board. Gave 2 frames e&l to No. 6.

May 6—e&l in top. Shifted bodies.

May 20—2 hatched cells in top. Strained bees, no queens.

June 30—8 frames of honey.

July 14—5 frames of honey.

July 22—3 frames of honey.

Aug. 10—2 frames of honey.

Sept. 29—In fine shape.

Dr. Miller has for many years been advocating and practicing the keeping of exact records and in all the bee world there can be no busier person than our genial ever-ready help in times of trouble and doubt, Dr. C. C. Miller.

These are only a very few of the many arguments in favor of keeping definite records, but their reasonable use will appeal to all modern and progressive beekeepers.

Hughson, Calif.

## Spanish Needle for Winter Stores

Knowing that your bees are located along bottom lands, and that you, no doubt, gather quite a little honey from Spanish needles some seasons, we are writing to ask what your experience has been in wintering bees on this honey.

In your opinion, about how many colonies would it pay to move a distance of 12 miles to a 60-acre field covered with a very heavy growth of Spanish needle? The plants are about 3 feet in height now, and will not bloom for some time to come.

We are well equipped for moving 60 colonies at a load, including covers, hive-stands and alighting-boards. Roads are of the best and hauling is done by auto truck.

Minnesota.

We have never had any trouble in wintering bees on Spanish-needles honey. The kind we have is named "bidens aristosa" by the botanists. There are some 15 different kinds of "bidens" described by the botanists, some of which yield no honey.

I would think that 60 colonies would do well on such a field, especially as there would probably be similar fields in the vicinity. However, the moving of bees is always more or less trouble and it pays only when there is positively no hope of any crop in their home locality. We have moved bees for the Spanish-needle and persicaria crop and had good success. We would suggest that you try it on 60 colonies this season and, if it pays, increase the number another year.—C. P. D.

## Introduction of the Honeybee to California

By J. S. Harbison

THE introduction of the honeybee into California was an important event, and engrossed a large share of public attention; wherefore, it is peculiarly appropriate to preserve as full a record of the transaction as possible.

The following letter from one of the earliest and most successful apiarists of this State, contains an authentic account of the introduction of the first bees in California, as well as the success attending their first five years' cultivation in San Jose Valley.

San Jose, Jan. 11, 1860.

Mr. J. S. Harbison:

Dear Sir: Yours of the 26th of December, propounding certain inquiries, has been received.

The first bees imported into California was in March, 1853. Mr. Shelton purchased a lot consisting of 12 swarms, of some person to me unknown, at Aspinwall. The party who left New York became disgusted with the experiment, and returned. All the hives contained bees when landed in San Francisco, but finally dwindled down to one. They were brought to San Jose and threw off three swarms the first season. Mr. Shelton was killed soon after his arrival, by the explosion of the ill-fated steamer, Jenny Lind. In December, two of the swarms were sold at auction to settle up his estate, and were bought by Major James W. Patrick, at $105 and $110, respectively.

Mr. Wm. Buck imported the second lot in November, 1855. He left New York with thirty-six swarms and saved eighteen. I purchased a half interest in them. I also, in the fall of 1854, bought one swarm of Major Patrick, from which I had an increase of two.

Mr. Buck returned East immediately, and arrived in February, 1856, with forty-two swarms, of which he saved but seven. Our increase in 1856, from the twenty-eight swarms, was seventy-three. We also had about 400 pounds of honey in boxes, which we sold at from $1.50 to $2 per pound.

Mr. Wm. Briggs, of San Jose, brought out, in the spring of 1856, one swarm, from which he had an increase of seven or eight swarms the following summer.

The above were the only importations I know of prior to the year (spring) 1857, which covers the ground of your inquiries.

There are in our county at this time about one thousand swarms.

Very respectfully, etc.,
F. G. APPLETON.

The first hive of bees ever in the Sacramento Valley was brought from San Jose in the summer of 1855, by Mr. A. P. Smith, the eminent nurseryman of Sacramento; they, however, soon died, which gave the impression that bees would not do well in this vicinity.

In this belief I did not concur, and

QUEEN QUALITY
HONEY

On top of the honey-house, a sign that can be seen and read for some distance therefore took measures to test the matter further.

In the fall of 1855 I sent East and had one hive of bees brought out, which arrived in Sacramento February 1, 1856. Though most of the bees had died or escaped from the hive during the passage enough remained to prove that by careful handling they could be imported with little loss, and that they would increase and make large quantities of honey when here.

I left San Francisco May 5, 1857, on board the steamship Golden Gate, on my way east, for the purpose of preparing a stock of bees for shipping to California.

Sixty-seven colonies were prepared from my own apiaries, situated in Lawrence County, Pennsylvania.

They were taken to New York and shipped on board the steamer Northern Light, which sailed from that port November 5, bound for Aspinwall.

The bees were put on board in good order, were placed on the hurricane deck, kept well shaded and ventilated, and arrived at the latter port on the 15th of the same month, being ten days from port to port. Having arrived at Aspinwall in the forenoon, and ascertained that no passengers or freight would be sent forward before the next morning, I obtained permission to open the hives on the company's grounds, and let the bees fly during that evening, which greatly relieved them, and contributed to their health during the remainder of the voyage.

The hives were closed up and placed on board the cars, crossed safely to Panama, and re-shipped on board the steamer Sonora, which sailed from that port on the evening of the 16th, bound for San Francisco, where she arrived on the evening of the 30th.

(There were other importations of bees made during the winter of 1857 and 1858, a large proportion of which died.)

The bees had ample stores within their hives, before they started, to last them through their long journey. I neither watered nor gave them any additional food during the whole trip, except what they obtained while flying out in Aspinwall.

During each day's confinement the bees labored incessantly to gain their liberty, but as soon as it was dark they always became quiet, and remained so during the night.

At San Francisco the bees were transferred from the Sonora to the steamer New World, and landed in Sacramento on the morning of December 2, 1857, thus terminating a journey of 5,900 miles, which was at that time the longest distance that bees had been known to be transported at one continuous voyage.

To the officers and agents of the various transportation companies, over whose routes I passed from Newcastle, Pa., to Sacramento, Cal., particularly Mr. J. F. Joy, agent, Panama Railroad Company; Captain Tinklepaugh, of the Steamship Northern Light, and Captain Whiting, of the Sonora, I am indebted for their valuable and efficient aid in securing a safe transit, and probably the most successful shipment of bees ever made to California.

On opening the hives, I found that considerable numbers of bees had died in each, and that in five all were dead, having been destroyed by worms which had hatched on entering the warm climate, from eggs laid by the moth previous to starting. The combs were entirely enveloped in webs containing the worms, and were a perfect ruin. A few worms were found in each of the hives containing living bees, but were soon exterminated.

Some hives were found to contain so few bees that they were united with other weak ones, till the number was reduced to fifty. In the latter part of January, 1858, I made a discovery which has since been verified in a number of instances. All the bees in two hives swarmed out, leaving them entirely deserted. On examining, I found young brood; the combs were clean and healthy, and each hive contained some six or eight pounds of honey. But it was nearly all sealed up, only a few cells containing honey being open.

Loading comb honey graded by Colorado Honey Producers' rules. A typical scene of several Association cars getting ready to ship

The cause of their deserting was then a mystery, as they had apparently all the requisites to do well.

I finally suspected that, owing to their long confinement and frequent passing over the sealed surface of the comb, it had become glazed so that the bees were not aware that they possessed so ample a store.

(In the spring of 1859, and particularly the present one, 1860, I have known the bees (California raised) from a number of hives, to leave in like manner. The only difference was that the hives were not over half full of combs. But these were full of honey and tightly sealed, like those before mentioned.)

Acting from this belief, I at once, with a knife, uncapped a portion of the honey in each remaining hive. This was repeated twice a week for the two following ones, and as the honey became scarce, feed was given to the most destitute. The result was that no more hives were deserted.

There was no indication of disease of any kind existing in any of them. Hence there is no doubt of the above being a cause of bees deserting their hives. The stock was still further reduced by sale, so that thirty-four hives of bees remained on the first of April. These were increased to one hundred and twenty, most of which were sold in the summer and fall of that year.

Again, on the steamer of September 20, 1858, I returned East for the purpose of transporting another stock, which had been prepared for that purpose during the previous summer. On the 6th of December, in company with my brother, W. C. Harbison, I sailed from New York with one hundred and fourteen colonies, and arrived at Sacramento January 1, 1859, with one hundred and three living. Of this importation sixty-eight were from Centralia, Ill. The remaining forty-six were from Lawrence County, Pennsylvania.

Owing to the lateness of the season of shipping, and unfavorable weather during the first three weeks after our arival, we were only able to save sixty-two out of the whole number; these, together with the six good hives remaining from the previous year, we increased to four hundred and twenty-two colonies, including the sixty-eight old ones. Three hundred of them filled standard hives and the remainder averaged half full.

The increase was all made on the artificial principle (as laid down in this work). Not a single natural swarm issued from any hive during the whole season. I also formed a large number of colonies, for different parties in Sacramento and vicinity, which were attended with like success.

During the time between October 1, 1858, and April 1, 1859, there were shipped from New York for California, over one thousand hives of bees, not over two hundred of which survived on the 1st of May of the latter year.

All but three of the parties engaged in shipping them lost money by the operation, many of them being unacquainted with the business.

Of the modes of importing bees to California, the most novel was that of Mr. Gridley, who brought four swarms across the plains from Michigan, placed in the rear end of a spring wagon. He arrived in Sacramento on the 3rd of August, 1859, with them, in good condition. His plan was to feed them, and in addition, stop occasionally in the afternoon and allow the bees to fly out and work till dark, when they were closed up, to resume their journey on the next morning. This was repeated from time to time, as they required their liberty.

Notwithstanding such disastrous results attending the previous year's shipments, there were upwards of six thousand hives of bees imported during the winter of 1859-60. They arrived in better condition apparently than those of previous years; yet, owing to the fact that large numbers of them were infected with the disease known as foulbrood prior to their purchase and shipment, together with the effects of so long a voyage, probably one-half of the whole number were lost. Many of the remainder have since died, or now linger in a diseased condition, which is infinitely worse for the parties owning them than if all had died at once. Thus the result has been bad for all concerned; for, while some have lost their money, others have injured their reputation, besides paralyzing for a time an important branch of productive industry.—Beekeepers' Directory.

## Soldering Honey Cans

By Dr. A. F. Bonney

I WAS wondering how many beekeepers understand the art of soldering tin, copper and galvanized iron, and deciding, after some thought that they are just ordinary humans, I approached some other mere men with the question. Not one man in a hundred had the least idea of how to proceed; therefore I assume that about one per cent of beekeepers understand it.

The things required are a soldering "iron," which is a chunk of copper on the end of a piece of iron rod, which, in turn, is driven into a wood handle; a bit of soldering fluid, which consists of scraps of zinc dissolved in muriatic or hydrochloric acid. Reduce to small pieces a piece of zinc sheet about 2x4 inches in size, and put it into a large-necked bottle which will hold about four fluid ounces. When ebulition ceases, fill the bottle half full of water and you have the standard flux used by tinners.

To solder galvanized iron, it sometimes becomes necessary to use the zinc and acid quite strong, or, in rare cases, full strength.

In soldering copper, pour about a teaspoonful of the flux into an earthen dish and add to it a piece of sal ammoniac about as big as a small bean. When this has dissolved it is ready to use.

Your soldering iron will require to be frequently "tinned," as some flames used in heating it destroy the surface at the point. At any time that this is required, file all four surfaces of the point. Have ready a large, flat piece of sal ammoniac and dig a shallow pocket in one side. Into this place a piece of solder and rub the hot iron into it when the tin of the solder will unite with the copper of the iron.

Another good, handy flux is a mixture of zinc chloride and vaseline. It is handy to use, as it does not spill.

Solder is a mixture of lead and tin, about half and half, and the best form to buy it in is wire, about as large as a knitting needle. There is no waste from using this form.

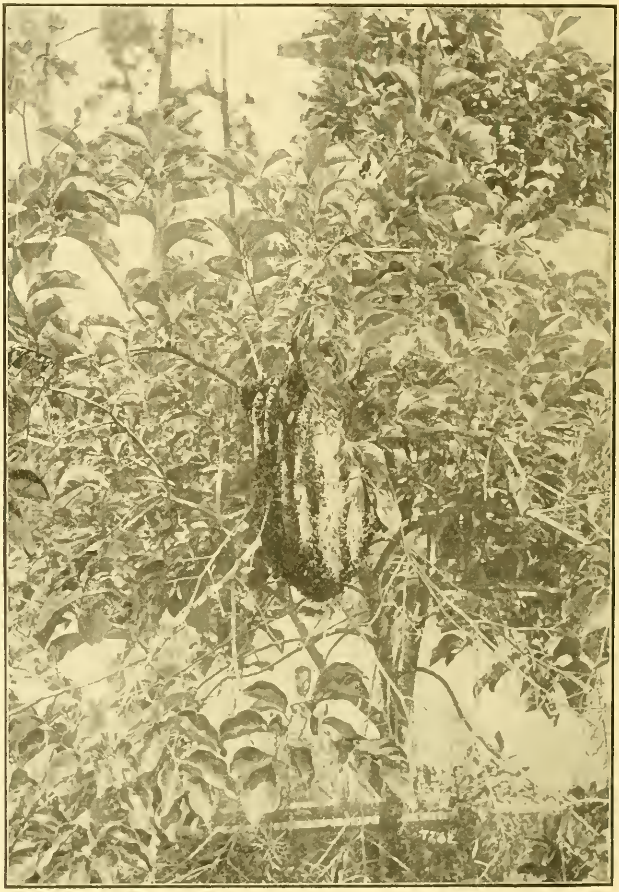
A surface to be soldered must be scraped clean and bright. Have the iron ready; wipe it clean with a swift rub of a damp cloth; then, holding the solder in place, touch the iron to it, when it will flow over the part to be mended. If a hole is too large to cover well, hold a dry cloth against it, inside the vessel, if you can reach it, when the solder will cover.

If, however, you have a very large hole to contend with, cut a piece of the same material you are working on. Let this be a quarter inch larger than the hole. Scrape one side, the one that is to be in contact with the dish, and also scrape the dish three-eighths of an inch around the hole, then smear on some solder. Apply the patch and lay the iron on it, when the solder will melt. You can, if you wish, solder around the edge of the patch to make sure; it will do no harm.

Buck Grove, Iowa.

Let us add that, unless the spot in the vessel to be repaired is as hot as the solder, it will be impossible to succeed in getting the solder to take hold. We found that out when we tried to solder a hole in the bottom of a large honey extractor with too small a soldering iron. If the soldering iron is large enough, it will heat the metal to which it is applied and bring it to proper temperature.

Very small leaks in honey cans, which are not discovered until after the honey is put in, may be stopped without emptying the can, by simply rubbing over the leak a small parti-



Colony of Bees in a young persimmon tree cle of wax or paraffine containing about one-third grease or tallow, or enough to make it malleable. This trick saves a large amount of work in handling cans of honey.—Editor.

## The China Tree or China Berry

THE wild China tree (**Sapindus Drummondi**), is also known as China berry, soap berry or umbrella tree. It is a very common shade tree in the southeastern States and is also found in the southwestern States to some extent. In Alabama it is a conspicuous feature of the grounds about the homes of rich and poor alike, quantities of the berries hanging after the leaves have fallen. It is cultivated to a less extent in Texas and California as an ornamental. The illustration shows blossoms and leaves. It is frequently mentioned as a honey-plant in the southern States, but is probably not sufficiently common in many places to be important.—F. C. P.

Bloom of the China-berry tree in Florida

## Are Colonies Weighing Two Pounds On April 15 Profitable?

By G. C. Greiner

AT our annual beekeepers' convention in Buffalo, January 10-11, 1918, the above subject was brought up for discussion. Mr. Demuth, of Washington, D. C., said that a colony weighing less than 2⅛ pounds April 15, might better be set aside as useless; it would not pay to spend any time with it. On the other side, Mr. Hershiser claimed that very few colonies weighed over 2 pounds at that time in this locality, and yet gave big returns of surplus honey. Another well-known beekeeper of this State made the remark that he considered a two-pound colony April 15 a gold mine. This may be a little strong, but I know from many years of experience that such a colony, under favorable conditions, is a mine of greenbacks.

The difference of opinion depends altogether on locality. My whole crop comes from colonies of that description; they either weigh naturally two pounds or less, or they are made so artificially.

It is not surprising, in fact nothing else can be expected, that beekeepers living in different latitudes do not always agree on all points of bee management. They have to adapt themselves to the conditions of their own localities, honey flora and climatic conditions being the main features. Even in the same localities and under the same conditions, all beekeepers do not see things just alike, but follow different plans and methods to suit their own ideas. It is the general belief that a hive full of bees in the spring will give better results in the line of surplus honey than one of these two-pound nuclei. I believe the same, but divide them.

Some time ago, at a social bee-talk with a prominent neighboring beekeeper, our conversation drifted to spring management. He objected to my method on the ground that his undivided colonies had more bees when the honeyflow came than my divided ones. Of course I agreed with him, but he was no little surprised when I explained that that was what I was trying to prevent. A large percentage of his bees are old, wornout field-workers that have outlived their usefulness as honey gatherers and exerting their last vitality with making preparations for swarming, while my bees, although fewer in number, are nearly all young, energetic workers, doing their level best at storing honey. It is the old stock that is bent on swarming; young worker-bees, the same as young queens, are less inclined that way. Consequently, I have practically no swarming, while he has to spend his time taking care of young swarms.

All beekeepers, especially comb-honey producers, know full well what a discouraging sight presents itself when a colony with one or more supers of partially finished sections on the hive sends out a swarm. Hive and supers are deserted by their working forces and all business is at a standstill. Treat them as we may; cut out the queen-cells and return the young swarm, hive them on the Heddon plan, or hive them on starters, foundation or empty combs, it is all the same; a certain time will elapse before they are sufficiently organized again to take up their super work, and by that time the best of the honeyflow may have passed.

The most convincing proof that colonies weighing considerably less than two pounds even as late as May 25, can be made profitable, is plainly demonstrated by the experience I had last spring. Early in the season I ordered, as a trial experiment, two 2-pound packages of bees with Italian queens, from the South, to be mailed May 10. But the breeders were crowded with orders and could not ship the bees until the 21st, arriving at my place May 25. About one-half of the bees in one package and one-third in the other were dead. The queen of the former proved to be all right. She began to lay soon after she was released, but the other was no good; she never laid an egg. She remained in the hive one week and then disappeared, making the introduction of another queen necessary.

With the exception of a little patch of brood the size of a double hand, which I had given them when making the transfer from the shipping cage to the hive, neither had any outside help except an additional empty comb whenever they needed one. During the white clover flow both queens built up their colonies at an astonishing rate and by the middle of July the first one, that had lost the most bees, was ready for the super. The other, on account of the poor queen at the beginning, was a little slower in building up, but both colonies did remarkably well. Being so late in the season, I did not expect that either could possibly fill more than one half-story super, but to my surprise they even filled a second and the better one of the two a third one. I extracted about 90 pounds from the one and 60 pounds from the other.

This is not a very big yield, but we must bear in mind that both colonies grew from a little bunch of bees weighing only two pounds each when mailed from the South May 21, and both had unfavorable conditions to contend with—one by the loss of many bees and the other by having a worthless queen. Under more favorable conditions they would have done much better. At all events, the experiment proves that combless packages of bees shipped from the South by parcels post are not questionable undertakings. Under common conditions it is perfectly practicable to replenish depopulated beeyards in our northern latitude in this way and harvest a fair crop of honey the same season.

La Salle, N. Y.

## Please Date Your Articles

WILL my fellow beekeepers please date their articles in the American Bee Journal? On page 405, December number, under the title "California Weather and Prospects," the writer says "this is Columbus Day." While this may be very instructive to the people of the United States, it is not of much use to people in other parts of the globe. Then some person comes along and says, "Now the maple is budding, etc., etc.," which no doubt explains the period of the year to those "in the know," but is no guide to me. Why cannot they give the exact date? Then others would get some idea at what periods their seasons begin and end. Another rotten habit they have (and it is, I think, peculiar to the United States people) is to talk of five-penny nails and ten-penny nails, etc., etc. I have not the faintest idea whether these are 1x18 or 4x¼. If they would refer to the nails by size, as I have done every one would know what they meant. Nails here go by size, and I suppose they do with you, commercially. Two by ten means a nail 2 inches long by one-tenth thick, and so on all through the sizes. If one speaks of 1¼x17 he knows it means 1¼ inches long by one seventeenth inch thick, or a thin, small nail for frame nailing.

We are having a rotten season here. My western farms have so far given nothing and the season there will end in four weeks, although here it may go on for four months. We have done fairly well here and hope to get a fair crop before the season ends.

On page 406, American Bee Journal, you mention paralysis, or a resemblance to it, in Mr. Carr's apiary and also in yours. I had exactly the same thing in one of my apiaries at Glenbrook, on the Blue Mountains, but only in about 25 per cent of the hives. The ground in front was covered with bees crawling about unable to fly, and they had crawled up on stones and sticks in small bunches. Very few of the bees died and these conditions only prevailed for a few days. Apparently they all recovered and regained the hives. The weather was excessively hot and dry, being just before Christmas, and no flow on. One of my neighbors complained that the bees had taken charge of her preserving room and had sucked all the juice out of the fruit she was preserving. Looks as though my bees were intoxicated; were yours and Mr. Carr's?

MAJOR SHALLARD.

I. Woodburn, N. S. W., Australia.
March 2, 1919.

Major Shallard is right. We should date our articles. In the case mentioned the fault is probably with the management of the Journal. We can readily understand that people living at the antipodes, as far south of the equator as we are north of it, and whose summer is our winter, should be anxious—when they take the pains of reading beekeeping news from so far away—to know at what dates the crops reported are harvested. We must try to bear this in mind. It will be useful to our own people.

As to the naming of nails "five-penny" or "ten-penny," this is a distinctive United States classification, owing, they say, to the fact that a hundred such nails used to cost five or ten pennies, as the case might be. But if we must resort to less antiquated names, we should certainly use the most progressive, those of the metric system, instead of using inches, feet, ells, yards, rods, chains, etc. It is true that many people do not realize how exceedingly simple and convenient the metric system is. Our scientists use it, in spite of the popular prejudice against it. But as advanced a magazine as the Literary Digest sees fit to sustain the old system, by publishing (March 15, 1919) a map of the world showing China and Russia, and other backward countries, on a par with the British Empire and the United States in a continuation of old systems. We would be equally ridiculous if we were to argue in favor of the old gum or the straw skep as against the modern movable-frame hives, on the plea that the former were still the more widespread over the world.

We should certainly be proud that wide-awake men like Major Shallard, living as far off as Australia, should take enough interest in our contributors to wish to know the time of their honey harvests.—C. P. D.

## Policy and Aims of the National Beekeepers' Association

By Chas. B. Justice,

IF the writer properly understands the object of the National Beekeepers' Association, it is that it may become an affiliation of all State, County or District co-operative marketing honey exchanges and associations throughout the United States, but that the affiliation shall have only regulatory powers. In other words, each district or state exchange of association will handle its own business as a complete entity within itself, and it should be incorporated on a firm contract holding its members together and developing the standards of quality, grading, manner of packing and selling of its products, and its membership in the National Beekeepers' Association should be by delegate properly accredited with the power and authority of the exchange or association sending such delegate, with the idea that the combined strength of all the State or district exchanges supporting the membership of the National would be sufficient to bring success to its efforts and determinations. It is hoped, therefore, that the National Beekeepers' Association might become famous in its worthiness for this name, for its higher services to the beekeepers in a national way, for its truly broad conception of the possibilities of the honey industry, and for its practical endeavors to attain a higher position for beekeeping among the industries, for its success in hastening the time of a more universal consumption of honey on the table everywhere, for having secured recognition of the importance of the industry by all national and state governments and actual assistance from the same through education, appropriations for extension work, and wise laws protecting the purity of our food and safeguarding the beekeeper in his work of production.

At the 49th annual convention of the National Beekeepers' Association, held in Chicago on February 19, the following resolution was adopted:

"Whereas, Your committee appointed yesterday under a resolution authorizing its appointment for the purpose of formulating and reporting a plan for the organization of beekeepers, realizing that the basis of such organization must be laid in the minds and hearts of the beekeepers themselves and must find its approval with them, respectfully recommend that a convention be called sufficiently representative in character to give weight to and command respect of its determinations; to that end be it

Resolved, That the Secretary of this Association be directed to invite representatives of all organizations of beekeepers, teachers of beekeeping and members of the allied trades to meet at Kansas City, Mo., in January, 1920, for the purpose of formulating and adopting a plan and constitution for a National Association."

E. S. MILLER,
COLIN P. CAMPBELL,
CHAS. B. JUSTICE,
WESLEY FOSTER,
Committee.

Our first duty appears to be that of encouraging each district where honey is produced to organize their local members into strong marketing associations or exchanges, and to all such the writer fortunately is able to explain fully the workings of the California Honey Producers' Co-operative Exchange, a successful marketing association, whose members own or control in excess of 100,000 colonies of bees. He will take unusual interest in pointing the way to all prospective organizations, and will immediately furnish copies of the California Honey Exchange contract, by-laws and other data to all who inquire for same. He suggests that all societies now organized for other than marketing purposes endeavor to find a common ground and incorporate for marketing purposes as well. The benefits derived from the purchase of supplies alone will far exceed any cost of organization, and though the members may dispose of most of their honey locally, even selling it out themselves in a small way if preferred, the possible surplus will be taken care of by the exchange, and we are sure that they can arrange to keep their expenses within bounds; and it won't be long before the old custom of local selling in small quantities, with its attendant (though uncalculated) costs of time and effort, will give way to the new and more up-to-date commercial method of wholesale distribution, leaving the beekeeper wholly free for production, which is his specialty. The supply manufacturers welcome the greater volume of business procurable by them through the increased prosperity of the organized beekeeper. The California Honey-Exchange turned over business approaching $15,000 to one supply dealer alone during the past few months.

At first thought the beekeepers are inclined to believe that the independent operators are opposed to organization among the beekeepers. This is a mistake. All legitimate dealers and handlers of honey everywhere welcome co-operation among the producers, as its first achievement is to grade the honey and put it in a better container and to keep the junk honey off the market. The California independent honey dealers have welcomed the California Exchange, admitting that the Exchange over night revolutionized the package, something the operators had striven for without success for ten years past.

To all the officials of all societies, exchanges and associations throughout the United States, as well as independent beekeepers located in districts where 1,000 colonies of bees or more may be organized into one exchange, the writer suggests that you write to him if he can render service in explaining the benefits, conveniences and satisfaction of organization among beekeepers.

318 L. A. Investment Bldg.,
Los Angeles, Calif.

## Controlled Mating---The Value of the Sire in Pedigree Breeding

By D. M. Macdonald

"THE old order changeth, giving place to new."

I have lately been seeing visions of future developments in the apiculture of the world. A beekeepers' paradise opens up before me as to the future which may be revealed to the eyes of the younger members of the craft. What led up to my dreams was a series of remarkable prices obtained for Polled and Shorthorn young bulls of the choicest strains. All around me, in the north-eastern counties of Scotland our farmers are at the top in regard to the possession of champions of both herds. At the recent annual sales young sires, not yet a year old, were disposed of at figures almost startling in these war times. One hundred pounds up to 900 pounds were quite common figures, and for the "plums" of the choice herds from one thousand to four thousand pounds was not uncommon. Blood tells, and these fancy prices were the result of "blue" blood, and careful breeding.

My aspiration is that a combination of queen-breeders will seek to emulate the doughty deeds of these cattle-breeders, and evolve a race of bees, or a strain of one or another of the best races, that will prove their breeding by results in their way as marvelous as these young sires of high pedigree. Who are prepared to center this union, and so prove themselves benefactors in beedom? Here in this country we work on too limited a scale, and continue so short a time absorbed in the pursuit, carrying it on as an avocation and not as a vo-cation, that little can be done in working for progress. Therefore, if at all, the duty of improving must be undertaken in America. You in the United States carry on the industry on such an extensive scale, your varied climate is so suitable all the year around for queen-breeding, and so many firms already devote considerable energy to breeding, mating and improving that there is a substantial foundation for future advance, on which the superstructure may be erected.

It may require Government aid to launch such a scheme on anything like an extensive scale all along the line, but there should be no difficulty in securing a grant in so democratic a republic, if the necessity for such a proposal is convincingly submitted to the powers that be. The present government apiary at Washington, working in unison with the already established firms turning out queens, all acting on well established formula in regard to breeding, could form the nucleus on which to build the complete structure working all over the Union, from the Atlantic to the Pacific and from Canada to Mexico—or, indeed, over the whole continent.

There can be no hesitation in the mind of any beeman to ascribe a very large share of our success in apiculture to the queens heading each stock, and the surplus taken of colonies, apiaries, States and the Union as a whole hinge on the question of breeding prolific mothers.

The proof of the pudding is the eating of it.

An enhanced price would be gladly paid, as it would mean that for a comparatively small initial outlay more bees, more honey and more money would be obtained, while the pleasure of working with such prolific mothers would give a new zest to the pursuit. Better queens will make better bees, better honey, better returns. Quantitively and qualitatively there is bound to be an improvement.

Is all this only a dream? Nay, verily! The design, the process, the evolution is only what has been going on steadily for many years in the Polled and Shorthorn herds alluded to above, whereby they have been improved by breeding and careful selection on well-marked lines until they have attained to such a state of perfection that they sell readily at the high prices—ten times the maximum obtained in my early days. It must be granted that man has more control over animals than over insects, but the rate of increase is in favor of the latter during a full year. Breeding with care and with intelligent selection has found to work wonders with bees, where the process has gone on for a long enough time. As a proof, witness what has been done in producing "All Goldens," "Three-banders" and "Five-banders." Color breeding to produce **the best** bee is a myth, a delusion and a snare. A beautiful exterior may produce softness, want of energy and a short life. I hope the splendid experiments recorded in last year's Gleanings have testified that improvement can be produced by pure mating. That would be a gulf bridged over, and this attained the whole system would be shunted on to the main line, instead of having a number of small trains running along on tiny branch lines, all leading along either parallel tracks or leading away in contrary directions—which is a simile comparable to the present system, or rather want of system, where isolated breeders work at present each for his own hand.

In every other walk of life the sire is the one who leaves the chief impress on the future generations. Pedigree in the sire enables the breeder to climb steadily up the rungs of the ladder of improvement. This is only asserting a well-known truth. The semen conveyed by the drone to the queen on her mating trip has an influence for good or evil on every egg the queen lays during her long or short life. A weak drone imparts the elements of weakness to his progeny. Drones must therefore be carefully bred, and if a test can be agreed upon only the strongest and most virile should be allowed to engage in the race for mating. Nature has provided an admirable test, but man can still further winnow out the weaklings and put more strenuous tests still in the path of these marital warriors. I know, of course, that American breeders work and have worked for betterment, but that is not the point I am aiming at. Each now follows his own devices and works only on his own initiative. There is no concerted plan, union or combination. Each breeder now has his own aims, aspirations and deals. I would have the entire body act as one on well-thought-out lines, applying their abilities and energies on a systematic plan laid down annually by a breeders' conference. A later article will seek to demonstrate how this can be done.

Banff, Scotland.

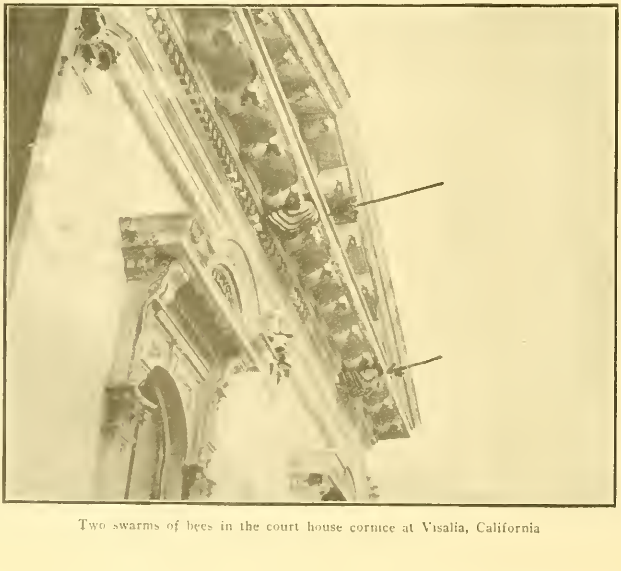
## Hiveless Bees

HANGING under the cornice of the court house at Visalia, Calif., are two big colonies of bees. The one came as a stray swarm several years ago and settled in an inaccessible position under the cornice. After a year or two of comb-building a swarm issued and settled in a similar position something like twenty feet away. The bees have been there several years, and from the size of the clusters to be seen from the ground below they must be very strong colonies. In the mild climate of California they do not apparently suffer any inconvenience from the exposure to the weather of winter.

During the short course at Visalia last winter these bees were the source of much curiosity on the part of visiting beekeepers. Hanging about 40 feet above ground it was impossible to get a very close view. One afternoon the sessions were adjourned to give everybody a chance to have a try at photographing the bees in their unique position. There is a large tree standing about 20 or 30 feet from the building. It seemed as though the top of the tree should furnish an ideal place to get the desired picture. Jay Smith was the most venturesome photographer in the crowd and with the help of the city fire department with their long ladders he was able to get a big start toward the top. However, in spite of the lift, he still had a hard climb to get into the desired position.

The two pictures shown herewith were taken by our associate editor from a second story of the building. One shows the combs under the cornice and the other a group of beekeepers at the foot of the tree who were watching Smith in his efforts to get a better position.

With the crowd of beekeepers standing around, the fire department with their ladders and the groups of people at the various windows, passersby were very curious as to the cause of so much commotion when no smoke was to be seen.



Two swarms of bees in the court house cornice at Visalia, California

## Twin Hives and Others

By Arthur C. Miller

THE twin hive plan suggested by Mr. Sladen in the American Bee Journal for April will doubtless attract much attention from the younger beekeepers, and some of the things he suggests that it may accomplish will probably be noticed by the older boys, but the plan is not new nor is it a panacea for beekeeping ills.

Away back in the early eighties, Prof. N. W. McLain, at Aurora, Ill., made and used a lot of such hives, and at the start he was very enthusiastic about them. I saw them in operation, listened to his explanations and later experimented with the principle, but it was disappointing, and like so many other hive schemes, it called for that most expensive item in honey production, "manipulation," in other words, "labor."

The "Long Idea" hive now receiving some attention was exploited by Gen. D. L. Adair in the early seventies and was designed primarily to avoid the necessity of lifting supers when it was necessary to get at the brood-nest. So good a beekeeper as the late O. O. Poppleton used many of them. They do avoid the lifting of supers, but the hives themselves are great, unwieldy things and possess the undesirable features mentioned by the editor.

Mr. Allen Latham took the "Long Idea" hive, put the entrance at one end instead of at the side, confided the queen to some frames at the entrance end, by means of a partition of excluder metal, and called it a "Let Alone" hive. He operated it on a minimum of attention plan, and in his hands it was successful until diseases invaded his yards, and I believe he is not now making any new ones of that type.

Hives have been devised to **force** bees to do certain desired things, hives for contracting, for expanding, for inversion, for all sorts of protection and all sorts of ventilation, for side storage and top storage, tall narrow hives, short broad hives, round and square and triangular; telescope joints, flat joints, beveled joints, entrances too varied to enumerate, until one wonders if it is possible to conceive anything new.

Just about two styles or sizes of hives remain with us after thirty odd years of use, the much-pushed Langstroth and the Quinby. There are variations of both, eight, ten and more frames of Langstroth and the same of Quinby. In judging the value of styles and sizes of hives, by their seeming popularity, one must be careful to consider why one or the other is mostly in use, whether it is due to intrinsic merit or to advertising. The Quinby hive has held its own unpushed through these many years, and now that its users are making themselves heard its use is spreading. (The "Jumbo" is for all practical purposes the Quinby, with the advantage of being an article "stocked" by the supply manufacturers). The Langstroth has never been stable, every few years seeing some variation, and now the press is filled with urgings for a two-story ten-frame Langstroth hive for constant use. This is better than any new type of hive, less costly to the beekeeper, but it is far from as cheap as a single-story deep hive. It is more expensive in first cost and more costly in operation and upkeep.

The two-story hive propaganda may "listen good" to the manufacturers with bodies selling at $1.06 each and frames at $6.50 per hundred and foundation at 85 cents per pound, but the honey producers must look out for their own interests, too. They must consider first costs and also operative costs. These things matter little to the back-yard beekeeper, but to the would-be professional they mean a lot. He must look sharply at the size of his invested capital with its resulting interest and depreciation charges, and he must also consider the labor cost in handling his hives. It makes a vast difference whether he can alone handle 500 or 1,000 colonies or must hire costly help.

It is obvious that the single-story deep Quinby or Jumbo hive is superior in all these things to the two-story hives.

Unfortunately for the craft, very many of the innovations in apiary appliances have been the result of enthusiasm, plus good propaganda, plus commercial possibilities. To prove this one only needs to follow through the bee press the growth and development of the sundry things now in use, and others once popular but now long forgotten.

All too often the sincere and honest inventor or designer was not a close observer and the deductions from such facts as were observed were erroneous. Examples of the statements in both of these paragraphs can be found all about us, but it is needless to cite them here.

During the past few years Dr. Phillips and Mr. Demuth have done much original work on the habits (behavior) of bees and their relation to practical bee culture and we already have beneficial results in their application to the wintering problem.

In his day Mr. Quinby was probably the closest observer and the soundest in his deductions of anyone. The conclusions he reached in hive proportions and sizes have proved sound for over fifty years. And the users and advocates of the Langstroth hive are beautifully proving for us that it is not right in proportion or size.

It is well that hives should receive our careful consideration, but before we go to inventing new ones let us see if they are new, and before we revive old ones let us see why they were discarded. They may have had merit and needed only a better understanding of bee behavior in using them. And before we ask the editors to consider reams of manuscript, and use up pages of costly space in their papers, let us each inform ourselves of what has gone before, both in mechanical appliances and in operative practices. Our old and tried things may be good enough, but our practices may not be right, perhaps based on mistaken ideas of bee behavior or from wrong deductions from observed facts. Some of us may have to depend on others for the careful observation and the accurate deductions and some of us may have to depend on others for the history and the editors are often too busy to dig it out, so we must all help.

Providence, R. I.

## Honey Storage

Mr. Morley Pettit:

Dear Sir—I am obliged to put in a settling tank system, and as I understand your new central plant is thus equipped, I would be obliged if you would tell me the size of tank you use, the material out of which it is made and whether you have it above the extractor and pump up the honey, or whether it is below the extractor, so that you have to hoist the honey from the basement after it is put up in containers. I hope you can give me the above information, and also the number of seasons in use and the drawbacks you have found so far. Also, if tanks are made of galvanized iron, give the gauge.

Ontario.

Our storage tanks for honey are 33 inches in diameter and almost 5 feet high—as high as two sheets of galvanized iron would make them. The diameter was determined by the width of ordinary doors through which they might have to be taken. The iron is gauge 24 or 22, I am not sure which. The first one was made of 26 gauge iron, and was considered too light, although it is still doing duty. Each has a close-fitting lid of the same material, and a good large gate of the most approved type, opening directly upward and not turning on a side pivot as the cheaper ones do. I refer to the ones used on extractors, which are all right for size, but are not at all satisfactory for controlling the stream from a tank holding nearly two thousand five hundred pounds of honey as these do.

We consider it requires at least three days in ordinary summer weather for the honey to settle satisfactorily, so you should have enough of these tanks for at least three days' extracting. Against the partition which separates the honey room from the extracting room we have built a bench 3 feet 3 inches high for a row of tanks. This leaves just enough space between their tops and the ceiling for a man on a step-ladder to lean over and skim them. Then, for filling, the scales are set on a table at which the operator can sit in comfort without stooping to the floor, as would be necessary were the gates lower down. The honey pipe from the pump rises to the ceiling in the extracting room, goes through the wall and delivers the honey over the top of the tank. It is galvanized iron gas pipe, 1 inch diameter, with rubber hose on the end for changing from one tank to another.

By the arrangement described above as compared with gravity delivery from extractor to store tanks we save much tiresome lifting, and stair-climbing, at a slight expense of engine power. I think it was in 1913 we started using the pump and gravity clarifying. We used the large tanks exclusively first in 1916. The pump hastens granulation, and if allowed to run without enough honey to exclude air will churn the honey; but this is easily regulated. Gravity clarifying is not sufficient for honey which is to be sold liquid in glass; but for bottling it should be heated and is easily strained in connection with that operation. The large tanks as described are an unqualified success, so far as we can see at present, and extracting, as we do, all at the home place.

MORLEY PETTIT.

## Ventilation of Hives

I am building my own hives and supers, but buy factory-made Hoffman self-spacing frames 19⅞ in. top-bars. The hive-bodies I build are 2½ inches longer on the inside than the frames, in order to give me space for double walls at both ends of the hive. I have a half-inch air space from the outside end walls and then nail a half-inch thick board for support to lay the frames on. Both these inner walls are raised 1 inch from the bottom-board for letting the air pass to and from the hive. Both outside end walls have one inch hole bored in the center and these holes are covered inside with wire screening to keep robber bees from entering the hive. These holes are also handy for lifting the hives.

The idea is that when a cold wind strikes the hives (I face all my hives south), it cannot penetrate directly

Group of beekeepers watching photographers in their efforts to get pictures of the bees into the broodnest, but the air, on striking the inner wall through the 1-inch hole in the outer wall is compelled to go either upward between the ends of frame or is forced downward through the 1-inch opening near the bottom-board into the hive.

On chilly days in spring or fall I close either one or both holes with corks, according to the temperature outside.

Spring robbing can thus be prevented by reducing the entrance so that only two bees can pass, as one can depend on the end ventilation.

I have had great loss in cellar wintering with sealed covers with no other ventilation than the entrance; the hives being icy in frosty weather and wet in milder weather, the result was many dead bees, moldy combs and sour honey. Since I adopted the end ventilation, which I can regulate with corks, I found that my hives kept dry with no moldy combs in spring. I had the entrance opening reduced to ⅞x1 inch with no detriment to the bees.

If my system finds the approval of Dr. Miller and the editor of the American Bee Journal, I intend to build hives with inner walls and ventilation holes on all four sides. Were it not for the dying bees in cellar the entrance could be blocked up entirely on such hives and bees could be kept in a lighted cellar.

An idea is revolving in my mind to build a square hive which will hold 13 Hoffman frames, 19⅛ in. top-bar, and in which the frames could be placed either crosswise or lengthwise. Such hive could be placed crosswise on the bottom-board in winter cellaring to keep the bees from direct striking of the cold air from the entrance. We find that bees usually cluster in the front of hive and above the entrance to avoid the direct draught of cold air which first rushes to the rear wall before it divides upward; hence the rear part of the hive must be colder than the front.

Of course, all my hive parts being interchangeable, I transfer all my bees in the spring to different hive-bodies, that is, I take an extra hive-body which was standing idle during the winter, scour and clean it, take comb after comb with bees out, scrape off propolis, brace and burr-comb, and set the frames and bees in the cleansed hive. The bees which hung on the old hive are brushed off in front of the new hive. In doing this performance one can find out the condition of combs, bees, honey, brood, and even see the queen by chance. Then I clean the hive I took from the first colony and proceed with the second colony in the same manner as with the first. On a sunny and warm day a man can clean and transfer twenty colonies, and one will be surprised to see and hear how comfortable the bees feel in the cleansed hive. We are saving the bees a great deal of extra work, and, besides, prolonging their lives, which means more rearing of brood.

I must mention that one must be on the alert that no disease is prevalent in his bee-yard in order to go into such procedure of spring cleansing.

Now I want Dr. Miller to make opposing suggestions to my ideas, as I am a beginner in beekeeping and would like to hear also from experienced beekeepers, if they have any criticism against my method of building hives.

Minnesota.

I would strongly advise that you try your plan with only a few hives—perhaps only a single hive—for some time before making all your hives in any new way. One reason is that if you continue in the business many years you may want to sell some of your stock, and bees in odd hives do not have a ready market. Another reason is that only after a full trial can you tell whether what looks like an improvement is really so.

You intend a kindness to the bees by making the entrance indirect, so that robbers cannot easily enter. I fancy I hear the bees saying, "Please don't do that. Anything of that kind doesn't really make any difference to the robbers, because a strong colony, such as we are, can easily keep out robbers, but it does make a difference to us, giving us a little more trouble to pass in and out, and if you figure up how many times that happens you will see it is quite important."

The Langstroth hive was originally made with a portico, but this was later discarded because it made a nice refuge for spiders. Your arrangement may suit the spiders still better than the portico.

Opening and shutting of holes with each change of weather will probably be found too troublesome to be continued.

If your hives are icy in the cellar, no change in construction will remedy the trouble, but some means should be used to make the cellar warmer.—C. C. M.

(We used to close inch holes with wire screen also, but found out that the bees glue them up entirely with propolis and that they usually do so with any opening through which they cannot pass. Examine the inch holes that you have covered with screens, and see whether they are not already partly closed.—C. P. D.)

---

## Moths

I see that Dr. Miller, in his reply to "Missouri," page 202, is rather inclined to be a little skeptical as to there being moth worms that will withstand freezing. But I can assure the Doctor that there is a species of the bee-moth whose larva will survive even frost, whether they be "right-minded" or not.

The worm is small, being from one-half to five-eighths in. long, and from one-eighth to three-sixteenths in. in diameter, and it is a pinkish color.

It was in the summer of 1914 that I was infested with this plague. I had a lot of supers that were not in use that year, and those worms got into them. They cover the face of the comb with a web, which is quite easily brushed off with a whisk broom. They did not do the combs much damage that summer, but worked chiefly upon the pollen that was stored in them. So I didn't pay much attention to them that season. I was positive in my own mind that I would be rid of them the following spring. So in the month of May the next spring, when I wanted some supers to put on some strong colonies, I thought to put on some of the supers with the worms in them, and let the bees clean them up.

Now those supers were stored in the loft of the honey-house, where the temperature goes to at least 20 degrees below zero. You can imagine my surprise when I examined those combs and found live worms. I was at a loss to know whether those worms were hatched from eggs that spring, or did they survive the frost? But I was rather inclined to the latter opinion. I tried to get rid of them by fumigating with sulphur and disulphide carbon, but both failed to destroy the worms. So I was at a loss to know what to do with them. However, I worked away with them that summer, brushing them off occasionally and re-opening them down as best I could. But in spite of all I did they destroyed quite a number of my combs, as they ate up the comb after the supply of pollen gave out. As I was not positive that those worms did lie in a dormant condition during the winter, I decided to make an early examination the next spring, so as to be sure. So acordingly the first week in April, after a few warm days (while the snowbanks were yet in the corners of the fences) I made an examination, and I found the worms were alive and ready for action.

Now, those worms were not in cocoons, but on the face of the combs right where they were when the cold weather stopped them, but as soon as they were thawed out they were ready to go to work.

So, when I failed to get rid of the worms by freezing, and with sulphur and sulphide, I decided to try starvation; accordingly I rid my honey-house of all combs and got them all into use, and in this way I got rid of the worms and have not been troubled with them since; that was in 1916. If I am ever troubled with them again I will send Dr. Miller a sample of them for him to experiment with. I might say that I think had I used the disulphide carbon strong enough it would have been effective. A. M. BRIDGE.

Ontario.

This seems to be something entirely new. I have never seen but two kinds of wax-moth, beside the common one, the little fellow that seems to stay at the septum. Of this latter I have seen but a few examples. You will not see the worm on the surface, but will see two or three mature bees in adjacent cells apparently trying to get out of their cells and unable to do so. Then, when you pull out the bees you will find the little miscreant at the bottom of the cells, holding the bees there by its web.

I hope this non-freezable variety will not become common.—C. C. Miller.

# DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
Dr. C. C. Miller, Marengo, Ill.
**He does NOT answer bee-keeping questions by mail.**

## Queen Excluder—Two or Three Eggs in One Cell

On May 17 I put an extracting super with four drawn combs and four frames with foundation over wire excluder, on what I thought my best colony.

May 18 bees had taken possession of super. May 19 I found one comb, a drawn comb filled with eggs—two and three eggs in the same cell—yet hardly any cell skipped. Surely a fertile worker at her business, and a queenless colony, I thought, and the colony must be broken up. Yesterday, May 21, I examined the brood-chamber. I found it full of worker bee-brood, a drone-cell here and there, eight of the ten frames covered with bees—no queen, however, to be found. I was mystified for a while. Then I took out that comb of the extracting super—and here along comes the queen, and very unconcerned, indeed.

The wire excluder shows no apparent defect. I removed the excluder to allow the queen to go to the brood-chamber unhampered —which she did almost at once. I put the super on without excluder, thinking what the queen did once she might do again, and in her efforts to get through the excluder harm may come to her.

1. What shall I do in regard to that super?
2. Shall I forgive the queen this time?
3. Why did the queen lay several eggs in the same cell?

An answer through the American Bee Journal will be appreciated. MINNESOTA.

Answers.—1. A little hard to say. The question arises whether the queen was at fault or the excluder. It may be that there was some defective spot in the excluder through which the queen might pass, although close examination might not discover it, in which case if you should return the super over the excluder, the queen might happen not to hit the same spot again. On the other hand, the excluder might have been perfect and the queen might have an undersized thorax, in which case she would be pretty certain to go through the excluder again. Two eggs in a cell, while there were no doubt plenty of empty cells, is somewhat against her, although I have known queens that for a time did bad work in having a plurality of eggs in a cell, and afterward conducted themselves with entire propriety. But another count against her is that in the sample which you sent at least two eggs are on the sides of the cells, one of them being clear out of the mouth of the cell. If she keeps up too much of that sort of thing, she can hardly be forgiven.

3. I do not know. As I have already said, a good queen may sometimes do this for a time, but if she does much of it, and especially if she does not lay eggs in the bottom of the cell, I would fear she is a bad queen, without being able to say exactly why she does such things.

## Setting Swarms—Queen Excluders, Etc.

1. On the front page of the American Bee Journal are the pictures of two men, one is that of Rev. Langstroth, the inventor of the movable-frame hive; who is the other?

2. On page 24 of the American Bee Journal of January, 1918, "Virginian" takes issue with Mr. Frank C. Pellett concerning the custom of some people making a noise when the bees swarm in order to get them to settle. Last season I had my bees under a big Chinaberry tree and a swarm settled on one of its branches about 10 feet from the ground. I shook them down 3 or 4 times after placing a hive under the spot where they were settled, but the bees always took wing and returned to the same branch. Then my wife took an old cow-bell and went to a nearby peach tree and rang it while I vehemently and continuously shook the branch, and the bees promptly settled on that peach tree, and were hived without further trouble. What is your opinion of this matter?

3. Is it possible for a virgin queen to go through a queen-excluder TEXAS.

Answers.—1. It is Charles Dadant, the father of C. P. Dadant, one of the ablest beekeepers of a former generation, who probably did more than any other man to popularize movable-comb hives in France, where he was better known than in America where he lived.

2. Are you sure it was a fair thing for you to butt in and not let the cowbell have a chance to do its work alone? Seriously, there is no certainty at all that the cowbell had anything to do with it,and at that moment it is just possible that the bees took it into their heads that they would change their location, cowbell or no cowbell.

3. Yes, such things have happened, either because the excluder was faulty or because the queen was abnormally small. But I suppose the same queen would go through just as well after becoming a laying queen. The abdomen of a laying queen is much larger than the abdomen of a virgin. It is not the abdomen, but the thorax that prevents the queen going through the excluder, and I think the thorax of a laying queen is no larger than it was while she was a virgin.

## Feeding—Robbing

1. If bees have plenty of stores, would feeding stimulate brood-rearing?

2. Suggest a way of keeping combs of honey and empty combs free of moths. If they are placed in a vessel that a bee-moth can't enter, will I have them anyhow?

3. In my locality the honey-flow is scant for 60 days after swarming time. Should I feed my new swarms till conditions improve?

4. How can I stop robbing?

Answers.—1. Generally not. With plenty of stores in the hive, so long as at least a little is coming from outside, brood-rearing will continue, and no amount of feeding you do will make any difference. If, however, an absolute dearth continues so long that the queen stops laying entirely, then feeding is of the utmost importance. In most places, however, that sort of thing never happens, and you can put it down as a pretty good rule that stimulative feeding and spreading brood are things best let alone.

2. If an empty comb or comb containing honey is entirely free from the bee-moth and its eggs or larvæ, then if you put it in a moth-tight place, it is safe. Indeed, such a comb is almost safe in any room in an ordinary dwelling without being moth-tight. Unfortunately, in nearly every case when a comb of honey or a section is taken from a hive, it contains at least the eggs of the bee-moth, and under favorable conditions those eggs will hatch. You will see that a comb containing eggs will not be helped by putting in a moth-tight place. Your recourse in such a case is to brimstone the larvæ or to use carbon disulfide, which last will destroy both larvæ and eggs.

3. The old rule was always to feed the swarm for a few days. I do not suppose it is really necessary, but at least it can do no harm, and if the bees cannot at the time get honey outside, it may do good.

4. Do not let it get started. In nearly every case of robbing the beekeeper is at fault, having done some fool thing to start the robbing, such as leaving bits of honey exposed. Various ways of stopping robbing have been used, one of the best being to pile hay or straw around the hive and keeping it thoroughly wet down with water. The robbers don't like to go through the wet stuff, and it does no harm to the bees of the colony.

## Tin for Honey—Introducing Virgin

1. Is a tin tank good for extracted honey?

2. How long can I let honey stand in a tin tank without doing harm to the honey?

3. If I put all but one frame of brood in a hive-body above an excluder, leaving the other brood and the queen below, and fill the space in the lower body with frames of foundation and let them stand for seven days, and then set the upper body in a new place, could I safely introduce a virgin into this hive as soon as most of the old bees returned to their old stand? MINNESOTA.

Answers.—1. Yes.

2. I don't know why it shouldn't stand all right for months if the surface of tin is perfect.

3. Yes; after the old bees have all returned to the old location almost any queen may be easily introduced. There might, however, be trouble with a virgin many days old. The easiest of all queens to introduce is a virgin less than a day old.

## Swarms Leaving

About 6 o'clock one morning last week a swarm of my bees came out and went into a hive close by that was weak. About 3 o'clock the next afternoon I looked into the hive and found the bees had left. I didn't see them go and don't know where they went.

About 4 o'clock the next evening another swarm came out and alighted on the limb of a tree. I hived them. After staying in the hive a while they came out and went back into the hive from which they came first. The first was a small swarm, the second a very large one. What would you think caused them to cut such capers? ILLINOIS.

Answer.—Bees seem to take delight in doing unaccountable things, things that leave one guessing. Your first case is the more unusual of the two. It is not so very uncommon for a swarm to enter a hive already containing a colony, but why should the whole thing abscond? A virgin in the swarm helps a little as a guess, and possibly the hive was standing in a hot place, which, together with the excitement of the intrusion, made them swarm out.

The second case happens rather often, possibly because the queen has difficulty in going with the swarm, and possibly for some reason we don't know anything about.

## Demaree Plan—Other Questions

1. I have 17 swarms so far. If I practice the Demaree or Allen plan of swarm prevention what will I do with so many bees after the honey season is over?

2. Should all queen-cells be cut out before the brood-frames are put into the upper story?

3. If after getting the swarm built up I should put comb-honey supers on, wouldn't the bees likely begin to swarm?

4. Do you believe in swarm prevention? I should think it better than having swarms emerge, as I should think that more honey will be produced than having the swarms leave.

5. A neighbor had a swarm emerge from his house. I hived it and the next morning it was out on a small tree about two feet high. I hived it again for him and a couple of days later I went over to his place and behold the swarm had left. After about 8 or 10 days a second one came out and I hived it. Next morning it was out, and so I hived it again. This time I put in a comb with young brood and it stayed. In about three days a third one came out and he gave it to me. I carried it home in a basket and put it into an old hive with four frames with full sheets of foun-

dation. The next day I went out to transfer them into a new hive, and they were not there. I can hardly account for that. The hive the neighbor gave me was a new 10-frame, complete with new frames and full sheets of foundation.

Do you think that was a swarm of a wild nature? IOWA.

Answers.—1. Dont' worry about so many bees. You will have only the progeny of one queen in each hive, and the hive will easily hold them all.

2. Yes, and also 8 or 10 days later.

3. They might.

4. I believe in doing anything and everything to prevent swarming that will not lessen the crop of honey.

5. Those bees were probably no wilder than others, but having a virgin queen they were inclined to desert if everything wasn't entirely to their liking. Like enough they were too warm. It is always well to give extra ventilation to a newly hived swarm, especially if it has a virgin queen.

### Catalpa

Is the catalpa bloom considered a honey-producer? KANSAS.

Answer.—I have never heard catalpa spoken of as an important honey-plant, and have never seen bees upon it, although I have had very little chance for observation.

### Queen-Cells Not Destroyed

1. I have a hive of bees that I caught this year. They have most of their comb drawn. They had a queen, but she disappeared after laying a good many eggs. They now have several queen-cells started and several are hatched, but none have been destroyed. I always thought that the first queen to hatch destroyed all the rest.

2. The bees have most of the frames filled with honey or pollen, with some sealed brood There are very few vacant cells where the queen can lay. Would this be likely to cause them to swarm? If so, what can I do to prevent it?

3. How much comb honey can I expect to get here in an average year? OHIO.

Answers.—1. As a rule the first virgin that leaves her cell kills the others, unless prevented by the workers. If they decide it is best to send out a swarm they protect the cells from her.

2. It is not entirely clear just what the conditions were, but being crowded for room is an important factor in making bees swarm. You should allow abundant room in the supers *before* they have any crowded feeling.

3. That's a matter that varies greatly, depending on the season and the management. A beginner might feel well satisfied with 50 pounds to the colony.

### Miscellaneous Questions

1. How much profit can be made out of one hive or colony of bees?

2. How many colonies can one man tend?

3. Which, in your estimation, is the best State for beekeeping?

4. What are assistants paid on apiaries, to learn?

5. Is there any future to the bee business, or is it overcrowded?

6. Will the price of honey drop down to 10 cents a pound, or how much will it drop?

7. What are the best books on the subject of beekeeping? IOWA.

Answers.—1. That's a pretty broad question. An expert might run it up into the hundreds by having a colony of such good stock that he could rear queens from it and sell them at a good price. But if you mean how much can be got for the honey received from one colony, it might in rare cases reach $50 or more. But taking one year with another, the average beekeeper will be doing very well if he averages $5 per colony, and a beginner sufficiently expert at making blunders might make that amount about $5 less in any but a very good year.

2. In most cases probably not more than a hundred.

3. I don't know. The difference is likely so little that in most cases it would not pay a man to change from one State to another.

4. That's as it happens. In some cases the assistant gets his tuition for his labor, and from that it varies until he gets a fair wage for his time without reckoning his tuition.

5. So long as honey remains the best sweet known there is a future for the bee-business, and so long as tons of nectar are going to waste it can hardly be overcrowded.

6. It is hard to foretell the future. I wouldn't attempt to be a prophet, but my guess would be that while honey, like everything else, will come down in price, it will never again fall to the low level of past years.

7. Those published by the publishers of this journal are good. Among the others may be named Root's ABC and XYZ, Dr. E. F. Phillips' Beekeeping, Frank C. Pellett's Productive Beekeeping, and after you have these committed to memory you may be interested in reading Dr. Miller's Fifty Years Among the Bees.

### Caging Queens

Do you believe a queen is injured by being caged ten days during the clover flow? Please fully explain your reasons for your opinion. OHIO.

Answer.—No, I don't really believe it does a queen any harm to be caged ten days in a hive during the clover flow, unless the cage be so small that she is allowed no room for exercise. If you press me for my reasons for thinking so I might answer with Falstaff, "Give you a reason for compulsion! If reasons were as plentiful as blackberries, I would give no man a reason on compulsion, I." Or, I might say I have no particular reason for it, and turn upon you with the question, "What reason have you for thinking it does hurt her?" It might be thought that there is a sort of violence in a sudden cessation of heavy laying. But she can keep on laying if she wants to, even if she doesn't deposit the eggs in cells. And ought there not to be some gain to the queen from a ten days' rest? I have had queens thus caged by the hundred, and never knew any harm to come from it. That's negative testimony, to be sure, and I'm ready to change my mind as soon as given a good reason to do so.

### Bees Disappearing

I bought two colonies of bees one year, and the next spring I had four colonies; this was last year. Last fall I had four new colonies and seven supers of honey. I wintered the eight colonies in the attic of a dwelling-house and they appeared to be in good shape until lately, when three colonies disappeared. Nothing but the empty comb left in the hive, and another hive has just a few bees left. There seems to be fewer bees each day. One hive had the cover filled with honey and before I got around to put on a super the honey next to the brood-racks had young bees in it, but the rest was nice and clear. The only change I made from last summer is, I put concrete blocks under the hives. Each colony swarmed once last year, and I then kept the queen-cells cut out.

What is the reason my bees are disappearing? MINNESOTA.

Answer.—You say you let each colony swarm once last year, *and then kept the queen-cells cut out.* When a swarm issued from any colony there were left in the hive a number of queen-cells from one of which a future queen was to emerge. These cells you cut out. Then the bees started other cells from young brood in the hive. But these cells you kept cut out, and there being no more young brood in the hive the bees were left hopelessly queenless. So the disappearance of the bees was from death through old age, there being no young bees in the hive to take the place of those dying off. Next time, instead of keeping all queen-cells cut out, leave one from which a queen may be reared.

### Transferring

I have 10 colonies of bees in standard 10-frame hives, which I desire to transfer to Jumbo hives. How can this be done? When is the best season to do this? ALABAMA.

Answer.—The transferring should be a comparatively easy thing, seeing that your old frames are the same length as the Jumbo frames. Follow the plan laid down in your book for transferring, cutting out the comb from the old frame and putting it in the lower part of the new frame. That will leave a vacancy of two inches or so at the upper part, and three or four of these vacancies can be filled by cutting up one of the combs into strips of the proper size. The best time to do this is when honey is coming in freely in the season, say in fruit-bloom.

EXHIBITED BY

Exhibit by British Columbia Department of Agriculture at Flower Show held at Nelson. B. C., during the Western Canada Irrigation Association's Convention, in 1918. Produced and staged by W. J. Sheppard, Inspector of Apiaries for the Kootenays.

# NEWS

### Another Association Formed.

A new beekeepers' organization has been formed at Torrington, Wyoming. A. B. Robertson is President, Mr. Pottello Vice President and Harry Eaton Secretary.

### New York County Meeting

The Monroe County Beekeepers' Society of New York State will meet August 9 at 10 a. m. at the home apiary of its President, Louis F. Wahl, Scottsville Road, Lincoln Park, N. Y. Everybody welcome, and a general good time for the ladies is arranged.

F. M. PILLSBURY,
Secretary.

### East Tennessee Beekeepers

The East Tennessee Beekeepers' Association was organized Thursday, June 28, at the Chamber of Commerce, Knoxville, when 250 representative men and women of the State gathered at the call of State Entomologist G. M. Bentley. Mr. Bentley was chosen President and Mrs. J. B. Young, Knoxville, Secretary and Treasurer. The President was empowered to name a Vice President in each of the 34 East Tennessee counties to co-operate in organization, legislation and fair exhibits. Nearly every member present at the organization meeting joined the association. Among those on the program were: G. M. Bentley, Mrs. J. B. Young, Knoxville; W. B. Green, Martel; Curd Walker, Jellicoe; Richard Crane, U. S. Department of Agriculture; O. M. Watson, Knoxville, and Kennith Hawkins, Watertown, Wis.

### Beekeepers Meet at Ambler

The combined meeting of the Philadelphia Beekeepers' Association and the Pennsylvania State Beekeepers' Association held at the School of Horticulture for Women, near Ambler, on Saturday afternoon, June 14, was a big success from both a social and beekeepers' viewpoint. About 60 ladies and gentlemen interested in bees were present.

### Millen to Ontario

Prof. F. Eric Millen has resigned his position as State Apiarist of Iowa to accept the position of Provincial Apiarist of Ontario. Mr. Millen has already entered upon his work at Guelph. He was very successful in his Iowa position and general regret is expressed among Iowa beekeepers that he has decided to leave that State. At last report the Iowa position had not yet been filled.

### Texas Experimentalist

A letter from Prof. Paddock, the State Entomologist of Texas, conveys the information that Mr. H. B. Parks, who was Extension Apiculturist at the Agricultural College, has accepted the position of experimentalist in bee culture with the Experiment Station. Mention has already been made of the fact that the Legislature recently made provision for experimental work in beekeeping on an extended scale. Mr. Parks should be a good man for this work, as he has had wide opportunities for observation and is a close observer.

### Instruction for Disabled Soldiers

The Government is making liberal provision for our disabled soldiers. Any who are interested in beekeeping will be provided with instruction at government expense at any of the following agricultural colleges:

University of Minnesota, St. Paul.
College of Agriculture, Ames, Iowa.
Agricultural College, Storrs, Conn.
College of Agriculture, New Brunswick, N. J.
Agricultural College, East Lansing, Mich.
Agricultural College, College Station, Texas.
Agricultural College, Manhattan, Kans.

The soldier and his dependents will be provided for by the Government while he is taking training, thus relieving him of any anxiety on this point. Plans are also under way for some special intensive courses of practical beekeeping instruction for disabled soldiers in addition to the regular courses offered at the agricultural colleges. Those interested may learn more concerning these opportunities by addressing the Federal Board for Vocational Education at Washington, D. C.

### Beekeepers' Chautauqua

The program of the Wisconsin Beekeepers' Chautauqua, mention of which has already appeared in our columns, is at hand. This is a novel summer camp for beekeepers, to be held on the shore of Lake Mendota, at the College of Agriculture, at Madison, from August 18 to 23. Doctor Phillips and Mr. Demuth, from the U. S. Department of Agriculture, are announced to be present, in addition to prominent Wisconsin men.

### Beekeepers' Picnic in North Idaho

Mr. and Mrs. Arthur Sires, who operate a number of bee-yards in Bonner County, Idaho, under the firm name of Sires & Sires, very cordially invited all the beekeepers in that region to attend a picnic and field meet on June 26, at their home apiary, about 10 miles from Sandpoint, and on the high bluff shore of Lake Pend d'Oreille.

About 40 beekeepers, including friends and neighbors, attended the picnic. Mr. Virgil Sires and a beekeeper nephew from Yakima, Wash., were also present. The Sires brothers have been specialist beekeepers in the Yakima country for about a quarter of a century, and produced honey by the carload. Sires & Sires now have several hundred colonies in their six or seven apiaries surrounding Sandpoint.

Mr. E. L. Ludwick, Bonner County Agricultural Agent, after the bounteous dinner, introduced Prof. H. A. Scullen, the government specialist in beekeeping, who gave a very interesting and instructive address.

GEO. W. YORK.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

### BEES AND QUEENS

ITALIAN QUEENS AND NUCLEI—Untested queens, $1; tested, $1.60; select tested, $2.50.

1-Frame Nucleus, $2.25; 2-frame, $4.00.

1-lb. package of bees, extra, $2.25; 2-lb. package, $4.00.

A trial order will convince you of their merits. H. A. McCarley, Mathis, Tex.

THE AMERICAN BEE JOURNAL is prepared to furnish printing for beekeepers. High quality, prompt service and satisfaction. Our shop is in charge of a man who specializes in printing for the honey producer. Send for our catalog of honey labels, stationery, etc.
American Bee Journal, Hamilton, Ill.

FOR SALE—Fine Italian queens, untested, $1 for one; $5.50 for six; tested, $2 for one; $9 for six; tested by return mail, untested ready June 1 to June 10.
R. B. Grout, Jamaica, Vt.

FOR SALE—Leather colored Italian queens, tested, June 1, $1.50; untested, $1.25; $13 a dozen.
A. W. Yates,
15 Chapman St., Hartford, Conn.

ITALIAN QUEENS—Northern-bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, one, $1; twelve, $11; fifty, $45. Send for circular.
J H. Haughey, Berrien Springs, Mich.

FOR SALE—Hardy Italian queens, 1, $1; 10, $8. W. G. Lauver, Middletown, Pa., R. 3.

FOR SALE—Goldens, untested, 1, $1.25; 6, $6.50; 12, $11.50. S. A. Tyler, Emden, Ill.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, $1.25; 6, $6.50; 12, $11.60; 50, $40; 100, $75.
H. G. Dunn,
The Willows, San Jose, Calif.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.60; 12, $11.50; 50, $40; 100, $75.
Garden City Apiaries,
San Jose, Calif.

FOR SALE—Bright Italian queens, $1 each; $10 per doz. Ready April 1. Safe arrival guaranteed.
T. J. Talley, R. 4, Greenville, Ala.

FOR SALE—3-band Italian queens ready June 1. Untested, each $1; twelve, $10; 100, $80. No disease here and satisfaction guaranteed.
A. E. Crandall & Son,
Berlin, Conn.

LEATHER and all dark colored Italian queens, when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock.
C. W Phelps & Son,
No. 3 Wilcox St. Binghamton, N. Y.

FOR SALE—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, $1.25 each; 6, $6.50; 12, $11. Satisfaction guaranteed.
W. T. Perdue,
Route No. 1, Fort Deposit, Ala.

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each; half doz., $4.50, or $8 per doz. Select untested, 90c each; half doz., $5.60, or $10 per doz. Tested, $1.50 each. Safe arrival guaranteed.
Tillery Bros., R. 5, Box 1D, Georgiana, Ala.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 'ortland St., New York City.

SWARTS GOLDEN QUEENS produce golden bees of the highest quality; satisfaction guaranteed. Mated, $1, 6 for $5; tested, $2.
D. L. Swarts, Lancaster, O., Rt. 2.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2. C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

FOR SALE—Three-banded Italian queens; untested queen $1, six, $5.50; twelve, $10. Tested queens $2 each.
Robert B. Spicer, Wharton, N. J.

EDSON APIARIES increased queen rearing facilities will insure the prompt delivery of A1 laying Italian queens, leather colored or golden. Prices reasonable. Address
Edson Apiaries, West Butte, Cal.

FOR SALE—Italian queens; select just hatched, 50c; untested, $1. Especially safe introduction plan free. Order in advance.
James McKee, Riverside, Calif.

I. F. MILLER'S STRAIN Italian Queen Bees for sale. Northern bred, for business, from my best superior breeders; gentle, roll honey in, hardy, winter well, not inclined to swarm; leather color or 3-banded. Queens a specialty; 25 years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, $1; 6, $5.50; 12, $10. Select untested, $1.25; 6, $6.75; 12, $12.
I. F. Miller, Brookville, Pa., R. R. No. 2.

FOR SALE—Golden queens second to none, for honey gathering and gentleness are unsurpassed; untested $2, tested $5 to $10.
E. V. Marston, Roxbury, Va.

FOR SALE—Queens, 3-banded Italians; selected untested, $2; selected tested, $3; safe arrival and satisfaction guaranteed.
Clinton Bradway, Monson, Mass.

FOR SALE—J. B. Brockwell's golden queens, untested $12 per doz., $7 for 6, $1.50 each; 3-frame nuclei $8, with queen. Tested queens $3 each. J. B. Brockwell, Barnetts, Va.

FOR SALE—Golden Italian queens $1, 6 for $5; hybrids, 3 for $1.
J. F. Michael, Winchester, Ind.

ITALIAN QUEENS of "Windmere" for sale; untested $1, tested $2.
Prof. W. A. Matheny,
Ohio University, Athens, O.

QUEENS, QUEENS—We are now up with orders; are mailing queens day after receipt of rush orders. No disease; satisfaction guaranteed. Best Italian untested queens 1 for $1, 12 for $11.50, 50 or more 90c each. I will care for your interests.
W. D. Archord, Pike Road, Ala.

FOR SALE—12 colonies bees in new 10-frame hives, wired combs, with 1 extracting super each, $7 each; 8 colonies bees in 8-frame hives, wired with 4 comb supers each, price $7 each.
Wm. Feier, Jr., Mason, Mich.

I AM PREPARED for shipping prize-winning queens. My queen was awarded first prize at State Beekeepers' Convention held in Little Rock May 31. Untested, $1; tested, $2.
H. P. Gannaway, R. 1, Box 243, Ft. Smith, Ark.

DON'T send to me for queens. If you want my stock send to the Penn Co., Penn, Miss. I furnish to them, and to no one else, best breeding queens.
C. C. Miller, Marengo, Ill.

FOR SALE—20 colonies bees, mostly Italians.
A. C. Gould, Weston, West Va., Route 4

WARRANTED QUEENS—Dr. Miller's strain, $1 each, $10 per doz., tested $1.50 each, $15 per doz. Safe arrival and satisfaction guaranteed. Geo. A. Hummer & Sons.,
Prairie Point, Miss

ITALIAN BEES for sale in 10-frame factory-made dovetailed hives, at $9 per colony. Pound packages of bees at $2.25 per pound. 2 pounds $3.75; untested queens $1.25 each. Add price of queen to bees in pound packages. No disease; inspector's label; satisfaction guaranteed.
J. F. Coyle, Penfield, Ill.

WANTED—6 Caucasian queens.
J. J. H., Box 5, Brownville, Fla.

"SHE SUITS ME" Italian queens, $1.15 each, from May 15 to October 15; 10 or more, $1 each. Allen Latham, Norwichtown, Conn.

I CAN FILL ORDERS by return mail for my choice stock of 3-band Italian queens. See prices elsewhere in Journal.
A. B. Marchant, Doctortown, Ga.

FOR SALE—One hundred stands of bees in 8 and 10-frame hives, wired frames; bees healthy. Write for prices and particulars.
Duane Shaw, Palestine, Ill.

REQUEEN NOW with Simmons' queens; prize-winning strains of goldens and 3-bands. Till September 1; none later. Order now; one, $1.50; 6, $7.50. Fairmount Apiary,
Allen R. Simmons, Claverack, N. Y.

FOR SALE—Baby swarms, three frames and queen, $5. J. A. Dougherty,
Box 66, California, Hamilton Co., Ohio.

FOR SALE—Italian bees and queens (the kind that fill from 2 to 6 supers). Bees, $12 a colony; queens, $2 each, 6 for $11. Queens go by mail, bees by express. Order direct from this ad. Miss Lulu Goodwin,
Mankato, Mich.

FINEST THREE-BANDED Italian queens for $1.25, 6 for $7.
J. W. Romberg Apiarist.
3113 Locust St., St. Joseph, Mo.

FOR SALE—Pure 3-banded queens, reared by the Doolittle method. Untested, 75c each, 6 for $4.25, 12 for $8. Tested $1 each, 6 for $5.75, 12 for $11. Breeders $4.
H. N. Boley, Hillsboro, Ia.

## HONEY AND BEESWAX

FOR SALE—Finest Michigan raspberry, basswood and clover comb and extracted honey. Unexcelled for quality and flavor. Write for prices. W. A. Latshaw Co.,
Clarion, Mich.

WANTED—Extracted white clover honey; state how packed, price; send sample.
L. P. Zimmerman
436 E. Market St., Louisville, Ky.

WANTED—Clover honey, comb and extracted. Buckwheat considered if price is right. State lowest cash price at your station. Sample will be requested if price suits.
The Forest Honey Co.,
2323 S. Woodstock St., Philadelphia, Pa.

FOR SALE—15,000 pounds of fine clover and basswood honey. The best offer takes it if satisfactory. Chester E. Keister, Clarno, Wis.

FOR SALE—New crop clover extracted honey, two 60-pound cans to case, 25c per pound.
H. G. Quirin, Bellevue, Ohio.

WE WANT every subscriber of the American Bee Journal to become a subscriber of the Domestic Beekeeper. Listen: A $5 (or more) order of beekeepers' supplies at catalog price bought through the Domestic Beekeeper, Northstar, Mich., and a dollar extra for a year's subscription to the Domestic Beekeeper, will entitle you to a dollar rebate, leaving your subscription to the Domestic Beekeeper absolutely free. Could one ask more? This offer will give one an idea of what the Domestic Beekeeper is doing for its subscribers in the way of buying their supplies.

WANTED—Light extracted honey, clover preferred; can use a ton. State price and particulars.
J. Hittel, 69 Manning Ave., N. Plainfield, N. J.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St. Chicago, Ill.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

## FOR SALE

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you. The Deroy Taylor Co.,
Newark, N. Y.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

FOR SALE—Silver Spangled Hamburg eggs and fine, rare old Paganini violin for sale.
Elias Fox, Union Center, Wis.

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, $1. American Bee Journal,
Hamilton, Ill.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—34 or 80 acres, 25 stands of bees, buildings, clearing, excellent location for beeman, near nice lake; will sell cheap.
H. Leffel, Lakewood, Wis.

FOR SALE—8 acres land, 300 colonies bees; land in high state of cultivation, growing second crop now; price per acre, $200. Apiary in three yards; production highest average in 10 years, 96 lbs. extracted honey, lowest 23 lbs, per colony. S. Mason, Hatch, N. M.

FOR SALE—1 large hand-power Cowan honey extractor, 1 boiler wax press, uncapping can and honey press combined, 1 Barnes combined circular and scroll saw, hand and foot power. All in first-class condition.
S. J. McDonald, Manning, Iowa.

FOR SALE—Nearly new 25-20 cal. repeating rifle, Marlin model 94; will trade for extractor. Carl Franke, Mauston, Wis.

FOR SALE—Cowan rapid reversible extractor, practically new, $23. L. Clark, Winona, Minn

FOR SALE—100 colonies of Italian bees; several strains, with full equipment for extracted and comb honey. No disease. Seven State certificates. Will sell everything at catalog prices of equipment, bees and honey thrown in. A bargain for somebody with the cash. Moving away, reason for selling.
E. A. Leffingwell, Allen, Mich.

I CAN FILL ORDERS by return mail for my choice stock of 3-band Italian queens. See prices elsewhere in Journal.
A. B. Marchant, Doctortown, Ga.

Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick. Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

Price, postpaid, $1 per year
United States, $1.25 Foreign, $1.50
Send for a free sample copy

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

FOR SALE—1 Root 4-frame automatic reversible extractor, good as new, $40.
Fifty-four pounds of medium brood at Dadant's, Hamilton, Ill., at 70c; order this lot from them.
One Cowan 2-frame hand reversible extractor, first-class condition, $18.
One Root German wax press and uncapping can with 20-inch galvanized iron top for uncapping; suitable for yard of 25 to 100 colonies, $18.
One 50-pound box Dadant's and 2 25-pound boxes Root medium brood foundation, at 70c.
Prices f. o. b. Watertown, Minn. Will trade for or buy an 8-frame friction gear power extractor and honey pump. C. E. Dustman,
315 Center St., Des Moines, Ia.

FOR SALE OR TRADE—Model 10 Royal standard typewriter, visible; like new; cash $50. Cost $100. E. A. Harris, Albany, Ala.

FOR SALE—$4,800, 183 acres two miles from Pleasant Lake, N. Dak.; 100 acres of it in wheat. The crop goes with the farm, if sold promptly. Near the main line of the G. N. R. R. Address,
"R," American Bee Journal Office,
Hamilton, Ill.

## WANTED

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—Second-hand 10-inch foundation machine, 5 cells to the inch; must be in good condition. Write giving full particulars as to date bought, size rolls, general condition and price (lowest) to Isidoro A Baldrich,
P. O. Box 25, Cayey, P. R. W. I.

WANTED—Small size honey tank or extractor can. H. Leffel, Lakewood, Wis.

WANTED—I have a fine location in California and want a man to associate himself with me in the beekeeping business. I have the stock of bees and equipment here in Arizona; wish to ship all to a certain point in California this fall; have an attractive proposition to offer the right man that can invest in half interest in what I have. Tell your story in first letter.
J. B. Douglas, Box 1085, Tucson, Ariz.

WANTED—Beeswax, old combs, cappings or slum-gum. We have just completed a very fine wax press and wax rendering department which will extract every bit of wax from your slumgum. No matter where you live, it will pay you to send us your wax refuse to render into refined wax or exchanged for Miller's California foundation. A trial will convince you. Send us a trial lot by freight today.
Miller Box Manufacturing Co.,
201 N. Ave. 18, Los Angeles, Calif.

WANTED—To buy, light extracted clover and linden honey. Address Emil Strudel,
1461 Richard St., Milwaukee, Wis.

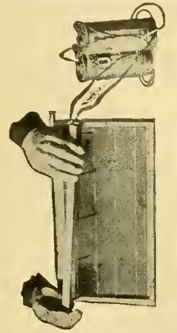
## MISCELLANEOUS

**E. D. TOWNSEND**, the present owner of the Domestic Beekeeper, bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the Domestic Beekeeper at the same low manufacturers' price. Listen now what he has got up his sleeve: Any American Bee Journal subscriber buying $5 worth of supplies through the Domestic Beekeeper at catalog price, and sending along an extra dollar to pay for a year's subscription to the Domestic Beekeeper, will get in return a rebate check of $1, leaving the year's subscription to the Domestic Beekeeper absolutely free to you. Of course, if your order for supplies is larger than $5 you will have a correspondingly larger rebate check on your order. One of our subscribers got a rebate check on his order of supplies last month, March, of $40. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought through the regular dealer in beekeeper supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the Domestic Beekeeper. A word to the wise should be sufficient to cause you to send your next order for beekeeper supplies to the Domestic Beekeeper, Northstar, Michigan.

## SUPPLIES

FOR SALE—100 cases two 5-gallon cans in second-hand cases. The cans are brand new and the cases are carefully renailed and good as new except for looks. Price per case, $1.25.
Dadant & Sons, Hamilton, Ill.

SPECIAL—Best No. 1 Sections, per crate of 500, $3.50; other goods in proportion. Price list free. H. S. Duby & Son. St. Anne, Ill.



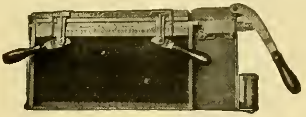
## ELECTRIC IMBEDDER

**Price without Batteries $1.25**

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market.

**For sale by all bee supply dealers**

**Dadant & Sons, Manufacturers HAMILTON, ILL.**



PAT. JULY 30, 1918

## C.O.BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

## Queens by Return Mail

Bred from the best three-band Italian stock. Nothing better. Single, $1.25, six for $5.50, twelve for $10.00. Breeders $3.50.

**A. B. MARCHANT**
**DOCTORTOWN, GA.**

## WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

## FOR BETTER BEEKEEPERS

**The California and Cornell Short Courses,** REPORTED IN SHORTHAND AT DAVIS, CAL. Thirteen principal lectures by Dr. E. F. Phillips and Mr. G. S. Demuth of the U. S. Dept. of Agriculture, Wash. D. C., covering the best methods of modern, scientific, practical beekeeping, **applied to both Eastern and California conditions.**

Fundamentals of WINTERING in all climates; elaborate and graphic descriptions of BROOD DISEASES with their diagnosis and preventive and remedial treatment; principles and practice of SWARM PREVENTION and control; discussion of brood-rearing, etc.

Not a book—POINT-BLANK TALK by our best authorities on beekeeping to our best beekeepers. A word-for-word record of the principal short course lectures.

**$1.75 postpaid**

**R. B. CALKINS**
**5800 Hearn St., Oakland, Cal.**

**Don't stop advertising.** because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.
**American Bee Journal Hamilton, Illinois**

**ATTRACTIVE CLOTHES**

Do not make the man, but they add greatly to his appearance.
Just so with your honey. It must have quality, but should have a neat package and an attractive label.
We can furnish the label. In many sizes and shapes suitable to fit any container.
Write for our new price list of honey labels and stationery.
**American Bee Journal, Hamilton, Ills.**

# Moneycomb will make your Beekeeping more Profitable

MONEYCOMB marks a progress as distinct as the electric light compared to the candle; or the steamship to the sailing vessel.

Heretofore Honey Producers have had to combat innumerable difficulties which reduced their possible profits.

MONEYCOMB, the Aluminum Honeycomb, has eliminated these troubles. The claims made for MONEYCOMB are based on facts gathered from the experience of hundreds of Beekeepers in almost every section of the country who are using MONEYCOMBS.

MONEYCOMB is not a foundation. It is a complete comb construction placed in a standard Langstroth frame, thinly coated with beeswax, and ready for immediate use.

Beekeepers are fighting hard against the ever-increasing destruction of their bees through the ravages of foul brood and other diseases.

Obtain MONEYCOMB and transfer your bees to them from your wax combs. A strong, healthy hive can be produced in from 25 to 35 days.

## EIGHT EXCLUSIVE MONEYCOMB ADVANTAGES

1 Substantial increase in the production of honey due to time saved in the drawing out of combs. MONEYCOMB is a complete comb.

2 Absolute control of European and American foul brood and other diseases. MONEYCOMB can be sterilized and used over and over again.

3 Positive prevention of loss from melting in hot weather—MONEYCOMB is constructed of aluminum, (not wax) therefore it entirely eliminates loss of bees and honey through melting and sagging of combs in hot weather.

4 Extraction of heavy honey easily accomplished with MONEYCOMB; this is practically impossible with wax combs.

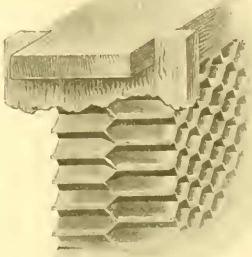
5 MONEYCOMB permits entire control of the production of drone bees.

6 MONEYCOMB being made of aluminum, eliminates loss of combs by wax moths and redents.

7 MONEYCOMB will last a life time; you can use it over and over again.

8 MONEYCOMB will save you more than its cost on your first honey crop because of the increased production, time saved, control of disease, and insurance against losses. Thereafter, because you use it over and over again, MONEYCOMB will pay you big, profitable dividends.

Weigh the above advantages — consider them point by point—you will then readily understand why MONEYCOMB is revolutionizing the beekeeping industry. MONEYCOMB is indispensable to every beekeeper because of its obvious merits. What other device used by beekeepers can excel or even equal MONEYCOMB?



A cross section of brood and honey Aluminum Comb showing the size and shape of its cells.

### JUST TWO OF MANY LETTERS

June 16, 1919 Orland, California

I have been trying the metal combs you sent me last spring. I find my bees putting honey and brood in the cells. So with me it is proving a success.

I am advising my friends over this country to make a start with them.

With best wish for your success, I am,

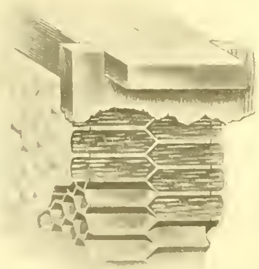
Yours truly,
W. A. SAYLER
Bee Inspector for Glen County.

Spadra, California

I am pleased to give you a report upon the eminent satisfaction which the aluminum honeycombs (MONEYCOMBS) purchased from you are giving. These combs were intermixed with some wax combs which I have, and upon examination I found the aluminum combs were better filled with honey and brood than the wax combs.

I consider your aluminum comb (MONEYCOMB) the greatest invention which has been offered to the beekeeping world. I have been a beekeeper for the past forty years and consider I am well qualified to express an opinion concerning your comb after having given it such a thorough and practical test.

Kindly enter my order and ship me at once 100 combs
W. G. BARTLETT.



The Aluminum Honeycomb is uncapped the same as a wax comb. Note in the above cut how bees build on a wax capping which makes it easily uncapped with an uncapping knife.

## How You Can Find out for Yourself the Facts About Moneycomb

MONEYCOMB sold on a guarantee of "satisfaction to you, or your purchase price refunded." That proves our confidence in our product. We know what it will do, of the satisfaction you can obtain through its use. We know that if you will try them out that you are bound to join the ever-increasing mass of MONEYCOMB boosters.

PRICE OF MONEYCOMB: 10 combs, (standard Langstroth frames) for $6 f. o. b. factory, Uplands, California.

**Remember**— You never invested an amount as small as that required for MONEYCOMB which produces greater satisfaction or profit.

**Note** — Get your order in at once to insure immediate delivery to you.

**Aluminum Honeycomb Company**

Central Building, 6th at Main Sts.
LOS ANGELES, CAL.

# Crop and Market Report

Compiled by M. G. Dadant

## THE CROP COMPARED TO LAST YEAR

In Massachusetts and the New England States, the crop is equal to last year, if not better. In New York it is probably 75 per cent of what it was last season, and reports, in some cases, state it will be about up to 1918.

In the States comprising Pennsylvania, Ohio, Indiana, and Illinois, the crop has been below normal, owing to the drought, although some localities have been favored with rain and will have a better crop than last year.

In the whole Southeast, the crop has been fairly good. Alabama claims about two-thirds of a crop, while Georgia and Florida will probably be normal. South Carolina is above normal.

Louisiana will have only a fair crop, but Texas has exceedingly flattering reports. In Texas the reports indicate that the crop will be from 200 to 300 per cent above last year, and reliable reporters state that it is above the normal crop covering a period of 10 or 15 years. Kentucky claims a little better crop than last year, while Missouri will be at least as good as 1918, as there was no crop in Missouri last year. Kansas is hardly up to 1918.

In Iowa the reports are very much varied in different localities. Eastern Iowa, as a general rule, will have very little crop, but western Iowa will probably range above last season. Reports indicate it will be 25 per cent better.

Michigan will have from one-third to three-fourths of last year's crop, which will be a little less than normal. Wisconsin claims a half crop, after a failure last year.

Minnesota is about half of normal and nearly up to last year.

Unfortunately, the crop in the inter-mountain States seems to be short. Arizona reports would indicate about a fourth of a crop, and New Mexico reports it will have less than in 1918. The majority of reports from Colorado indicate about half a crop. Wyoming is good, but not as good as 1918, and Montana is below last year. So is Idaho.

The same is true of the Pacific Coast States. California reports, as a general rule, from nothing to 75 per cent of last year, with a majority of the reporters claiming about 50 per cent of the 1918 crop. One lone reporter states he will get twice as much as last season.

Summing the matter up, the crop would fall short of last year, although the increased number of bees may increase the total somewhat. We await, with impatience, the data gathered by the Department of Agriculture as to just what percentage of crop there is this year. This, of course, is very slow in coming out, and may be three weeks to a month late.

## CROP PROSPECTS

In the New England States the prospects for the balance of the year are above normal, while in New York they are probably normal. Ohio seems to have fair prospects, as do the other Central States, although there is not much fall crop harvested here. The Southeast will have very little during the fall, although there are minor flows. In Texas the prospects for a fall crop are good. There is an exception, however, in mesquite, which will be less than the average this year.

Apiaries located along the rivers, the Mississippi and Missouri especially, claim to have very good prospects for a fall flow. In western Iowa the same is true. The prospects from now on seem to be fine.

In the intermountain States the crop is not nearly all harvested, but the prospects appear to be about 50 per cent.

In California the prospects are mostly poor, although a few localities claim there will be a fair crop. All in all, we do not believe the honey gathered from now on will have any great influence on the market. The harvest during the last two months of summer is not very large when bulked in proportion to that of June and July.

## PRICES OFFERED

Very few reported having offers on honey. One large Alabama producer was offered 13½ cents for tupelo and 15 cents for sweet clover honey, which offers he refused. Many Texas beekeepers have been offered from 11 to 15 cents for their extracted honey in two 60-pound cans. These, however, in practically every instance, were refused.

One party in Iowa was offered 15 cents, another in Idaho sold his comb honey for $6 per case, and several reporters in California had been offered and refused 17 cents for orange and 16 cents for white sweet clover. The situation as to offers has not changed very much from our last report. The big buyers seem to be holding off to see just where the market will settle, thinking possibly prices will drop later on.

## PRICES EXPECTED

It is very pleasing to note that beekeepers are a unit in thinking they should get a good price for their honey. Only one or two beekeepers state they will be satisfied with the price of 13 to 15 cents for extracted and $5 per case for comb. Practically all the others desire in the neighborhood of 16 cents for amber and 18 to 20 cents for white extracted honey, with a price ranging from $6 to $7 for comb.

The California Co-operative Association raised their prices over previous quotations and are now asking 18½ cents for orange and 16½ cents for white sweet clover honey, f. o. b. coast. The Texas Association is expecting to get for its members in the neighborhood of 16½ to 17 cents for light amber extracted, and proportionately more for bulk comb.

It is interesting to note that reporters, as a rule, ask more per pound for their honey than is being quoted on the market by the different Co-operative Associations. This shows a tendency favorable to holding this honey off the market until the association price is accepted as the standard.

The Texas Association has sent out a bulletin to its members urging them not to sell at a reduced figure. Evidently there are plenty of buyers at a low figure, if the beekeepers are willing to accept. The Texas Association has made arrangements, also, for storage of their honey. Beekeepers may get 60 per cent of the value of their honey as soon as it is placed in a bonded warehouse. In this manner the association executive can hold the honey until they get the proper prices. A similar plan, no doubt, is being carried out by the California and Colorado Associations.

Threre is not much doubt that the formation of the many county associations throughout the whole United States has had a gratifying influence in holding up prices. The beekeepers have found the benefits of association and will apply them to marketing as well as to purchasing supplies and handling their colonies.

## WHAT WILL PRICES BE?

It is a very difficult matter to make any guess as to where prices will settle. There are some important items which will have a bearing. The beekeepers seem to be working as a unit towards prices almost as good as last year's, and this they should have in order to compensate them for the high prices of all supplies, tin containers, etc.

Another thing which will help hold up the price is that the well-posted authorities state there is a shortage in the sugar supply for the season of from one to two million pounds.

The export of honey also is going better now, and more and more is being shipped out.

Notwithstanding all this, the demand for honey is not excessive. It is, of course, a little early, and we look for requests for prices to come in at a good rate as soon as cooler weather arrives.

We have received one report of request for prices on two carloads of white honey for December delivery. This came from a former wholesale liquor firm, who had evidently changed to the manufacture of sweets of some kind. It has further been reported that a large Missouri brewery is turning its entire equipment toward the making of candy. No doubt the output of soft drinks, sweets, etc., will be very much enlarged through the enforcement of the anti-liquor law. How much effect this will have upon honey is yet to be seen.

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

# EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

**A word to the wise USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

# BEE SUPPLIES

¶We carry a complete stock of supplies at all times, and can make prompt shipments Our prices will interest you.

¶A trial order will convince you that our prices and goods are right.

**Send Us Your Inquiries**

**A. H. RUSCH & SON CO.**
**REEDSVILLE, WIS.**

# BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, $2; untested, $1.50. Price list free

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**

Write for Price List and
Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, 75c each, 6 for $4 25; doz., $8. Select tested, $1.25. Safe arrival of queens guaranteed.

Package bees, without queens, $1.75 per lb. Packages, with queen, 1 lb. and queen, $2.50; 2-lb. and queen, $3.75; 3-lb. and queen, $4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

**J. F. ARCHDEKIN,**
**Big Bend, La.**

**PORTER BEE ESCAPE SAVES HONEY TIME MONEY**

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

**QUINN'S QUEENS OF QUALITY**

Have no superiors—"There's a reason." Are Mendelian bred, good qualities accentuated. Gray Carniolans, Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease resistant, white comb builders—they deliver the goods.

ITALIANS, 3-banded, line bred, pedigreed; need no boosting; they speak for themselves

**CHAS. W. QUINN Sabot, Va.**

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

**In making up rush orders remember we are able to make immediate deliveries by Parcel Post and Express of the following**

Glass Honey Containers.
Friction Top Pails, 3, 5, and 10 pound sizes and 5 gal. cans.
All lines of supplies you are likely to need in a hurry.
Comb and Extracted Honey supers, with and without inside fixtures.
One and two story Lewis Beehives, in flat, nailed and painted.
Most sizes of Root's Extractors.
Bingham Smokers and Honey Knives (including steam heated.)
Lewis Sections all standard sizes.
Wire Nails, Staples and etc.
Wire, Nails, Staples, etc.
All lines of supplies you are likely to need in a hurry.

Need any shipping cases? We got lots of them. Thank you. Now may we serve you?

**THE DEROY TAYLOR CO., Newark, Wayne Co., New York**

If you read this before the first of **August Remember the** State Field Meeting and be with us.

**Seamless Paper Containers**

**THE MOST PRACTICAL AND ECONOMICAL CONTAINER FOR**

**Honey**

**Superior to any other single service container manufactured**

**Write for particulars and prices**

**THE SANITARY PAPER BOTTLE CO.** Sandusky, Ohio 415 Water St.

**Golden Italian Queens**

Rustburg, Va., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

PRICES OF QUEENS

| | Nov. 1st to June 1st | | | June 1st to July 1st | | | July 1st to Nov. 1st | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $8 50 | $15 00 | $1 50 | $7 50 | $13 50 | $1 25 | $6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Safe arrival, purity of mating and satisfaction guaranteed

**No Nuclei or Bees by Pound**

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

**QUEENS**

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 years a Queen-breeder

| PRICES | Before July 1st | | | After July 1st | | |
|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 |
| Select unte'ed | $1.50 | $ 8.00 | $14.00 | $1.00 | $ 5.50 | $10 |
| Tested | 2.00 | 10.00 | 18.00 | 1.50 | 8.00 | 14 |
| Select tested | 2.50 | 14.00 | 25.00 | 2.00 | 10.00 | 18 |

**BREEDERS**—The cream from our entire stock of outyards, $5 each. Usually we can send all queens promptly after June 10th.

Breeders, select tested and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

**H. G. QUIRIN, Bellevue, O.**

**BEE SUPPLIES**

**Let Us Figure With You**

Get our discounts before buying
Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
**142 Grand Ave., Kansas City, Mo.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**HONEY** **WANTED** **HONEY**

Write us what you have to offer in extracted or comb. If comb state how packed, graded and quantity. If extracted, state how put up, mail sample and quote your lowest price. We will buy unlimited quantities if price and quality are right.

**C. H. W. Weber & Company**
**2146 Central Avenue** **CINCINNATI, OHIO**

**MARSHFIELD GOODS**

**BEEKEEPERS**

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

**A BIG STOCK OF**
**BEE SUPPLIES**

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**
**159 Cedar Lake Road** **MINNEAPOLIS, MINN.**

**Shipping Cases for Comb Honey**

It is an acknowledged fact that comb honey put up in attractive Shipping Cases will bring a better price than the same honey put up in an inferior case. Our Shipping Cases are made of a good, clear grade of basswood lumber and will be a credit to any crop of honey.

**TIN CONTAINERS FOR EXTRACTED HONEY**

We have a good stock of—

**60 lb. Square Cans**
**12 lb. Square Cans**
**5 and 10 lb. Round Friction Top Pails**

We also carry in stock a complete line of all other beekeepers' supplies

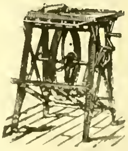
**THE LOTZ 1 PIECE SECTION**

**The kind that does not fold in breaking is manufactured by us**

Our 1919 catalogue and price list mailed to you free upon request.

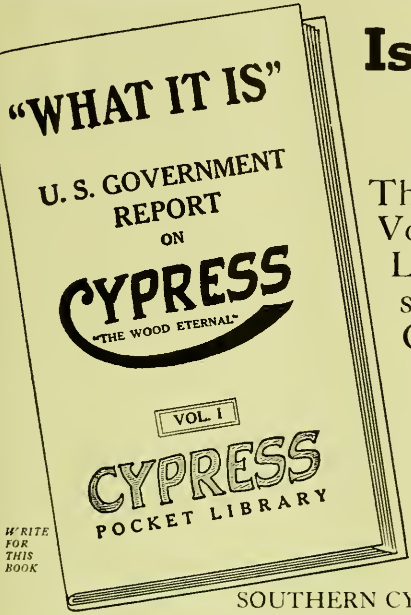
**August Lotz Company**
**Boyd, Wisconsin**

**BARNES' Foot-Power Machinery**



Read what J. L. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**



# Is Uncle Sam's Word Good Enough?

Then Mr. Bee-man, just write for Volume I of the Cypress Pocket Library and read what our respected Uncle has to say about Cypress ("The Wood Eternal.") You'll then see why any beehive, or bottom or winter case not made of Cypress is not so good as it might be. 42 other volumes all free. The list is in Volume I. Write and it comes.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, *LET US KNOW IMMEDIATELY*

**HIVES**
**FRAMES**

MADE RIGHT BEE SUPPLIES
QUALITY SERVICE

**SUPERS**
**SECTIONS**

A COMPLETE LINE OF SUPPLIES

**THE KRETCHMER MFG. CO., Dept. A, Council Bluffs, Ia.**

## HONEY, HONEY, HONEY

We shall be in the market for any quantity, both comb and extracted. Mail sample of extracted and state price asked in first letter.

**Beeswax** always in demand. Cash or in trade.

"GRIGGS SAVES YOU FREIGHT"

## TOLEDO

June is here and the big White Honey Flow with it. Don't get short of sections and foundation, the season promises to be good.

## Honey Cans and Cases

Order these early, a limited number of second hand cans on hand at 75c per case

**GRIGGS BROTHERS CO.**

DEPT. 24 TOLEDO, OHIO

# REVISED EDITION
# NOW READY

So great was the demand for copies of the A B C & X Y Z of Bee Culture that the new 1917 edition of 15,000 copies is entirely sold out. A supply of books estimated to last a year were completely exhausted in six months.

## THE
## NEW EDITION

is greatly revised and contains 896 pages. It contains the very latest and most up-to-date methods, and is the leading authority of the world today on beekeeping.

**THE A. I. ROOT CO.**
MEDINA, OHIO

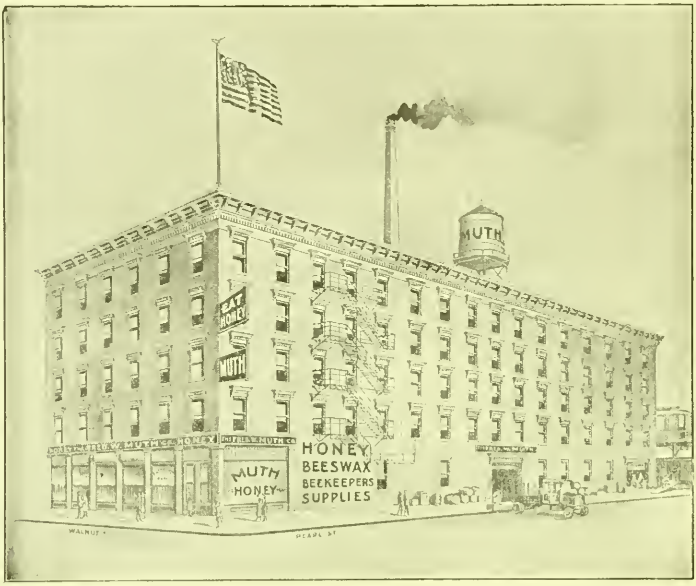
NEW YORK PHILADELPHIA CHICAGO
ST. PAUL INDIANAPOLIS NORFOLK
THE A. I. ROOT CO. OF CALIFORNIA
SAN FRANCISCO LOS ANGELES

AMERICAN BEE JOURNAL

SEPTEMBER, 1919

THE NEW BEE LABORATORY AT SOMERSET, MARYLAND

## Here's a Reproduction of Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

**LEWIS' BEEWARE**

**DADANT'S FOUNDATION**

**ROOT'S SMOKERS, EXTRACTORS, ETC.**

**OLD COMBS AND CAPPINGS**
Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**
Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

**THE FRED W. MUTH CO.**
Pearl and Walnut Streets
CINCINNATI OHIO

"THE BUSY BEEMEN"

**Four Bee Books**
**YOU SHOULD HAVE**
**IN YOUR LIBRARY**

**First Lessons in Beekeeping**
By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

**A Thousand Answers to Beekeeping Questions**
By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

**Practical Queen-Rearing**
By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

**Langstroth on the Honey Bee**
Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price $1.50**
Mailing weight, three pounds

ALL FOR SALE BY
**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

**Winter Problem Solved**
BY THE
**Hive with an Inner Overcoat**

The 18 colonies of bees shown above on the roof of one of our buildings here in Grand Rapids, wintered 100 per cent perfect, or without loss, during the winter of 1918-19. They were brought in by truck over forty miles, about November 1. An attempt was made to feed them, as they were short of stores, but without success, as it was too late and cold. They were transferred from single-wall hives to the Protection Hives. They were left here all winter and the winds swept them from all directions. No special preparation was made as to young queens, young bees, feeding, etc. Every swarm came out a prime swarm, with the exception of one that was queenless and dwindled out in May.

It will pay you to try out a sample shipment of these hives this winter. Send for special circular and catalog.

TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

Write for prices on Friction Top Cans and Pails and 60 pound Cans, giving quantity wanted.

**A. G. WOODMAN CO.**
**GRAND RAPIDS, MICH., U. S. A.**

"falcon" **BEE SUPPLIES** "falcon"

HIVES, SUPERS, FRAMES, SECTIONS, FOUNDATION
In fact anything in the line of Bee Supplies

Have you ordered your supplies yet for the season of 1919 which is now with us, or are you waiting for the last moment to come around when the supplies now carried in stock will be nearly exhausted, or the shipping department so busy that they will not be able to give you the quick service which you naturally expect? Just stop and think what would happen if all beekeepers would do this. To relieve the situation and to help conditions in general, get your order in at once.

We are prepared to make immediate shipments from our large warehouses, which were packed to the brim before the season started.

You all know what the **"Falcon"** line is, and you ought to know what the **"Falcon"** service is. If you never ordered from us before, better let us have the next order to convince you not only for once, but forever.

Send for the Red Catalog and "Simplified Beekeeping"

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
Where the Best Beehives Come From

**DO THE BEES "TAKE TO THEIRS FIRST"?**
READ THE FOLLOWING

Superior Honey Co.,
Ogden, Utah.

Montalba, Texas, June 11, 1919.

Dear Sirs:

I received your **SUPERIOR FOUNDATION** all O.K. and tried it in the brood-chamber and supers side by side with that of others who claim that the bees would take to theirs first, but they did not.

I never had tried your foundation until this time, but the bees draw it out nice and even. Some makes that I have tried they gnaw out, so I count yours the best that I have ever tried, and I will try to get it every time. Please send me your price list.

Yours truly,
LEO WARDEL.

When ordering for next season write us for special prices on our **SUPERIOR FOUNDATION.**

**SUPERIOR HONEY CO., Ogden, Utah**
(Manufacturers of Weed Process Foundation)

**The Diamond Match Co.**
(APIARY DEPT.)
MANUFACTURERS OF
**Beekeepers' Supplies**
CHICO, CAL., U. S. A.

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
Apiary Department CHICO, CAL., U. S. A.

EARLY ORDER DISCOUNTS WILL
**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**
or J. W. ROUSE, Mexico, Mo.

**MOTT'S NORTHERN-BRED ITALIAN QUEENS**

that resist disease well, therefore must be hardy, prolific, and hustlers; they are gentle. Untested, $1 each, 6 for $5.50, 12 for $10. Select tested, $2 each. Plans, "How to Introduce Queens" and "Increase," 25c.

**E. E. MOTT, Glenwood, Mich.**

# SELLING HELPS

Now is the time to advertise your product and establish your own market. Let us help you with suitable advertising matter

**Our Printing Plant** The American Bee Journal has established a printing plant in charge of an expert printer who devotes his entire time to speciality printing for beekeepers. We take pride in our ability to turn out the best work with prompt service.

**Labels** If you have not received a copy of our label catalog, send for one today. Attractive labels help to sell your honey. A good product in attractive packages will make permanent customers Our stock labels are the best in the market and we are prepared to furnish distinctive designs on special order for customers' exclusive use if desired.

**Supplies** Letterheads, envelopes, cards, tags, carbon sheets—everything in the stationery line for beekeepers use.

**Society Printing** Since there are weddings and parties in beekeepers families we are prepared to furnish latest styles in invitations, announcements, calling cards, etc., on order.

**A Specialty Shop** Ours is a specialty shop designed to serve the beekeepers needs exclusively. Our shop makes a special study of the beekeepers needs and guarantees your moneys worth or your money back.

For Quality, Service and Satisfaction in printing, write

**AMERICAN BEE JOURNAL**

**HAMILTON, ILLINOIS**

# A BIG DISCOUNT

Mark off 6 per cent if you send in your orders in September.
This is your early order cash discount effective September 1.
Our prices for Lewis Beeware for 1920 are now out.
You can stock up with reserve supplies at a low cost.
Labor conditions are unsettled and transportation is slow.
Present manufacturing costs preclude lower retail prices later.
It is good beekeeping to prepare for emergencies in time. So get out your **"BEEWARE"** catalog and send your order now.

**Every beekeeper who has honey to ship should get our quotations on shipping cases before buying. It will mean a big saving to you.**

**"HOW TO WINTER BEES OUTDOORS"**

This is the title of a new Lewis "How" booklet priced at 5 cents. Every beekeeper should read it. If you order one, our 1920 catalog of bee information will be also sent you. There are ten other "How" booklets on as many subjects. Our "Pocket Library" of eleven booklets at 5c each.

**LOOK FOR**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS U.S.A.
MAKES THE FINEST

**THIS MARK**

**IT IS A GUARANTEE OF THE FINEST BEE SUPPLIES**

**THERE IS A DISTRIBUTOR SOMEWHERE NEAR YOU**

**G. B. LEWIS COMPANY. WATERTOWN, WISCONSIN**

AMERICAN BEE JOURNAL

VOL. LIX—NO. 9 HAMILTON, ILL., SEPTEMBER, 1919 MONTHLY, $1.00 A YEAR

# HONEY PRODUCTION IN THE SAGE DISTRICT

## Notes on the Methods of a Well-Known Beekeeper Who Produces Honey on a Large Scale---By Frank C. Pellett

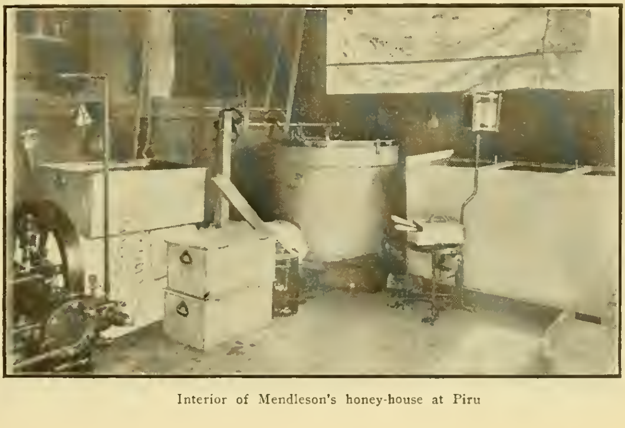
M. H. MENDLESON, of Ventura, Calif., is well known to the readers of the American Bee Journal. Beekeeping has been his life work and he is eminently successful. During the California short courses Mendleson was a center of attraction everywhere. Government experts and editors of journals received due attention, but it was easy to see that Mendleson, the man who had made such a conspicuous success of honey production under California conditions, was the man whose acquaintance California beekeepers were most anxious to make.

Mr. Mendleson has been a beekeeper since 1871 and has been in the business continuously in California since 1881. Few men have equalled the large crops which he has produced and none are more careful about the details of daily attention to the apiary or the preparation of the crop for market.

In our April issue, in connection with the story of California's first extensive beekeeper, J. S. Harbison, mention was made of the incident that started Mendleson to California. It was in 1876 that Harbison shipped ten carloads of honey to the New York market. Hearing of the shipment, Mendleson went to the city and saw the honey. He became so much interested in the possibilities of the west that he later left his home in New York and located in California, where he has since remained.

Mr. Mendleson tells interesting tales of the early days in California. On his first arrival from New York he entered the employ of Mr. Wilkin, at Sespe, where he spent two years. Wilkin was at that time one of the large producers of California honey. The trip to the west was an eventful one for young Mendleson. Reaching Santa Barbara by boat, he took stage for Santa Paula. Here he left his trunk at the stage office and started on foot to Sespe, 9 miles distant. About four miles of the distance had been covered when darkness overtook him, and he found the road had been plowed up. It is easy to imagine the feelings of the young man just from the East at finding himself lost in a strange, unsettled country. After wandering about for a time, he saw a light and in due time came to a shack occupied by a long-haired man with one arm who was living alone with his bees in a remote situation. In spite of the appearance of his host, Mendleson declares he was never better entertained in his life. The lone beekeeper was a well educated man, who shared his rough quarters with the wanderer. Next morning Mendleson continued his journey on foot. When he finally reached the Wilkin quarters he found a two-room shack. The family had come up to the apiary site to spend the summer months, leaving their home in Ventura. He found Wilkin also with long hair and beard and his wild appearance, together with the strange surroundings made the young man very homesick for a time. However, he found his employer to be genial and refined, and he was soon busy and content.

Getting supplies in and the honey crop out was a much more serious matter in those days than is the case now, with the fine roads and automobiles. Then there were no roads except mere trails, and of course horses furnished the only means of trans-



Interior of Mendleson's honey-house at Piru portation. In 1881 they brought in the tin plate and made cans, in which to store the honey crop, right in the apiary where they were to be used.

Mendleson is located in the sage district of Southern California and for thirty years has been moving to the bean fields. Ventura County is said to have produced last season 72 per cent of the lima beans of the entire United States. Lima beans and the black-eyed beans are the two varieties which produce nectar in abundance. The black-eyed beans yield a dark amber honey, but of good quality. The honey from lima beans is almost water white and of fine flavor. Mendleson has secured as high as 150 pounds average per colony of this fine honey in a good season. A peculiarity of the bean honey is that it will sometimes sweat and ferment on the hives of weak or medium colonies near the coast. With strong colonies this seldom happens, even near the coast, and not in any case in the interior, where it is improved from being left on the hives. The bean honey granulates easily.

While Mendleson practices migratory beekeeping, he moves to the same location year after year and has a complete outfit at every apiary site. His Piru apiary is perhaps as widely known as any single apiary in America. Many photographs have been published showing this most attractive outyard. The model arrangement, with the background of mountains, makes a most attractive picture. Another illustration herewith shows the interior of the honey-house at this yard. It will be seen that he has a complete power outfit with every labor-saving device.

He formerly made a practice of requeening all his colonies every two years. Since he has had to contend with European foulbrood he requeens every colony that does not build up quickly in spring, and never allows any queens more than two years old. With his 1,400 to 2,000 colonies the queen-rearing operations alone make quite a business. For this work he has a lady engaged who makes it a specialty. Women are well adapted to queen-rearing, as they are careful and painstaking, and there is no heavy lifting connected with this particular work.

A crew of women workers at the Mendleson yards

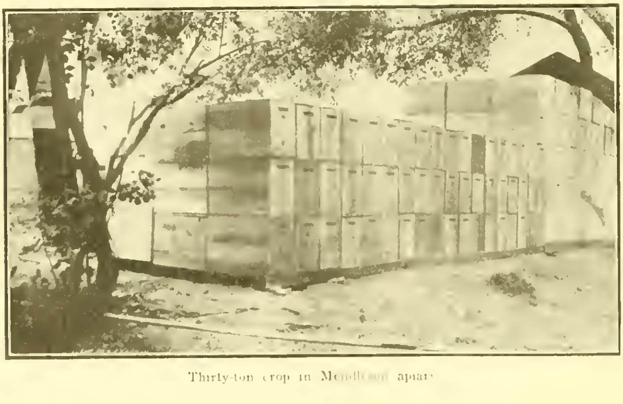
In the Mendleson apiaries women take a prominent place in the regular work. Our illustration shows a group of four of them in special farmerette suits. Except for the heavy lifting at extracting time and when moving the bees he finds the women make very satisfactory beekeepers. In addition to his crew of women beekeepers he hires one man by the year and gives a hand himself wherever help is needed.

It is his practice to leave about twice as much honey on the hives as will be needed in a favorable season. He insists that surplus left with the bees pays big interest, as it saves feeding in times of shortage and insures that brood-rearing will be continued at proper times, even though no honey is coming in. An abundance of stores and plenty of room in advance of the honey flow is the best insurance of a crop. More California beekeepers fail from extracting too closely than for any other reason. His largest crop was more than 100 tons and had he been able to get sufficient skilled help and enough cans to hold it he feels that this particular crop might have been nearly double. When a big flow is on it takes a lot of action to keep up with it with a couple of thousand colonies of bees.

In a good sage year it is possible to keep a lot of bees together without overstocking. The sage crops always come following wet winters. One year he kept 800 colonies in one yard. However, the sage often fails for two or three years in succession. When a flow does come the bees pile up the honey in a way to gladden the heart. He has had from one to five full-depth Langstroth supers filled on every hive in three days' time during such a flow, with an average of two such supers for the yard. There have been only two of these exceptionally heavy flows in his thirty-eight years of California experience. After the three days of heavy flow he was able to extract twice again six days apart and once more after another nine days of time. All told, the average was more than 300 pounds per colony from sage.

His bees work lightly all winter on the eucalyptus or gums, if the weather is favorable. However, there is little dependence to be placed on the honey from this source, and it is important to leave the bees with honey enough to carry them through. He gets his crop from sage in spring and moves to the bean fields about July 1. Although sage may fail, he regards the bean crop as almost certain. East winds sometimes blast the bloom of the beans, but this is rare. They bloom through a long period, beginning in July and continuing until September. The bloom is prolonged with irrigation. His average from beans is about 50 pounds per colony per year.

A special feature of the Mendleson equipment is the series of big tanks, four each holding seven tons, two eight tons and one ten tons, providing a combined storage capacity of fifty-four tons. In addition to these he has several four-ton tanks. After one disastrous experience, when he lost a considerable portion of his crop because he was unable to get cans, he decided never to let it happen again. The big tanks provide against any such calamity in future. With a crew of six men he has extracted and filled with honey a seven-ton tank every two days during the rush of a good season.



Thirty-ton crop in Mendleson apiary

One experience of a kind is always sufficient to insure that Mendleson will be prepared next time. When he had his first experience with American foulbrood he shortly cleaned it up and has always been on the watch for its reappearance. When European foulbrood came along, thirty colonies from all his apiaries was the highest loss in one season. Since then he has constantly practiced preventive measures, keeping his colonies strong and requeening frequently with resistant stock.

He puts up his honey in attractive packages and seeks the best trade, thus realizing better prices for his crop. He sells through only one dealer in one city, and supplies him year after year. On the whole, there are few beekeepers who might not learn some valuable lessons from M. H. Mendelson. When it comes to turning out the work, he can set a pace that makes a good man hustle to follow. On one occasion, as a test, he took off, alone, and extracted 1,500 pounds of honey in half a day.

One of the Mendleson apiaries in California

## Beekeeping in Australia

(Concluded from August)

By T. Rayment

### South Australia

In our previous article we dealt with "The West." Well, to proceed, we may travel east by the transcontinental line, one of the greatest railways in the world, which runs parallel with the southern coast, or, we may board one of the British mail steamers and disembark at Adelaide. To get back to the vernacular we are now in the Holy City" in "Southos." The latter is the Australians' affectionate name for the State of South Australia, and the former is the same worthy's cynical cognomen for the beautiful capital city renowned for its many churches. Before the Fereration of the States, South Australia was comprised of a band running clear through from the Great Southern ocean to the tropical seas of the northern boundary. After federation, the commonwealth accepted the northern half, which is now known as "The Territory." Your readers will now perceive the necessity for two sub-divisions.

South Australia is old in its ways; sedate is the proper word. It is the lucky owner of a calm exterior. It has a big range, heavily timbered, frowning down over the city, and its beekeepeers are a calm, good-tempered lot of people. But don't imagine that their staid behavior precludes them from effecting concerted action when it comes to disposing of their big crops—**and they do get big crops.** Don't forget what we have already said about the State, for all the bee-farms are in the southern portion. In South Australia the big crops are gathered from the ubiquitous "Gum trees" or Eucalypts. There are "Red" gum, (*E. rostrata*), "White" gum (*E. paniculata*), South Australia "Blue" gum (*E. leucoxylon*), "Sugar" gum (*E. corynocalyx*), "Pink" gum (*E. fasciculosa*) two or more "Peppermints" (*E. odorata* and *E. amygdalina*), "White" box (*E. hemiphloia var albens*), and last but not least, the remarkable and glorious pink-flowered *Eucalyptus calophylla var rosea.* Now you must experience a flow from the species named to appreciate the immense quantity of nectar secreted. Of course there are many other shrubs and plants, not forgetting that golden harbinger of spring, the "Capeweed," already mentioned. All day long the bees roar in the trees; mere humming is quite inadequate to describe it. When one remembers that there are hundreds of flower buds in a single group about two inches in diameter and that the whole tree resembles giant cauliflower when in bloom, some faint idea is gleaned.

The trees in South Australia are more dwarfed in general, but for pollen and honey they are hard to beat. Just at present the State Beekeepers' Association is in abeyance for reasans that are outside the ambit of these articles. Along the Murray river there are fruit gardens in abundance, but the exportable crops are the product of the gum trees.

At one time the South Australian Government interested itself in the export of honey from that State and, through its Agent General in London, made a contract with a leading firm of London caterers to place South Australian honey on all its tables. "Good biz," too. It also advanced so much when honey was on board ship. (By the way, the same State experimented with "egg circles," that is to say, the Agricultural Department organized a collecting system to gather the "hen fruit" of the farmers' "chooks")

There are many up-to-date apiarists in South Australia, but there is room for thousands more, and some day, when Europe quiets down and feels "sweetish," there is going to be a big banking account for some "Aussies."

**"The Territory."** Now let us tell you something about the northern part of the State now controlled by the commonwealth, named "the Territory," best known to the Southern States as the "Never Never."

In spite of all written to the contrary, central and northern Australia is not desert-like in any one particular. We have not traveled across Australia ourselves—dashed few have—but we have many photographs, and more, the actual experience of an ex-mounted constable who has "cobwebbed" the immensity of the Territory at all seasons of the year. There are mountains and great rivers and pasturing places that "run" stock by the 30,000 or 40,000 head. And there are Eucalyptus trees in abundance, and the ex-mounted man saw two and three bees' nests in each tree. Honey, wax and pollen in abundance.

But there we stop. The "Illumbria," as the black aboriginals call the native "Gum" tree (*E. tesselaris*) is a splendid honey producer, but the bees' nests are not those of the hive bee (*Apis mellifera*), but of the tiny native bee *Trigonum.* My friend says: the grass grew as high as the saddle flaps, the streams teemed with fish, honey was everywhere, and carpenter bees and mason bees, and occasionally a black fellow crept after him to launch a spear from the cover afforded by the rank growth of trees. The blacks like honey and refer to a wild bee-colony as "white pfellars sugar bag." We Australians are only just tickling the outside edges of our country. When we wake up and "get a move on" the United States won't have a monopoly of "The States." People will say, "do you mean the States of Australia?"

On the grassy plains of the Territory there are large herds of buffalo and "good money" is earned by those hunters who travel the vast areas to shoot the animals for their hides; the rest of the beast is permitted to decay; transport difficulties preclude the utilization of the other portions. Port Darwin is the sea port of the north and some very large meat works operate there, for the Territory is primarily a "meat" country. Apiculturally, the Territory remains a *terra incognita.*

A telegraph line stretches across the continent, and the linesmen who live in small groups many hundreds of miles from civilization, are always on the lookout to welcome, or succor any travelers who should happen to pass that way. In case any of you readers undertake the journey—it must be done on horses, with a spare animal or two to carry the packs—their movements would be telegraphed ahead and a royal welcome extended to any travelers from the "outside."

The "Great Australian Desert," as the legend on the maps goes, is not a desert in the sense understood by the man in the street. There are great areas of "prickly spinifex" that can only be penetrated by certain tracks, but there is a "wet" or rainy season, when the great rivers rise and become navigable for many hundreds of miles.

In the closely settled portions of the commonwealth the beekeeper has to contend with the settler and the grazier who, in their efforts to secure more grass, "ring" the gum trees. That is, they cut a complete ring around the trunk which effectually prevents the tree from drawing any further nourishment below the "ring bark," for it is through the outer layers of fibre, etc., that the sap flows upward. This does not apply to the conifers, or pine trees, which draw up their sustenance from the center and increase by the formation of successive cylinders of primary and secondary bast.

In the "out back" areas there is little or no ringbarking.

## Some Observations on Nosema-Disease

By G. F. White, Bureau of Entomology, Washington, D. C.

(Concluded from August)

Queens have been taken from Nosema-infected colonies and introduced into healthy ones, with the result that the colonies remained free from infection. Queens have been reared and mated in Nosema-infested colonies, and have recovered from the infection and remained healthy. It has also been seen that colonies show a marked tendency to recover from infection. Examinations have shown, furthermore, that in diseased colonies it is the exception, and by no means the rule, to find Nosema-infected queens. Fear, therefore, that queens are a fruitful source of infection in Nosema-disease, would be by no means justifiable.

Numerous observations strongly indicate that the disease is not likely to be transmitted by means of drifting bees or drones.

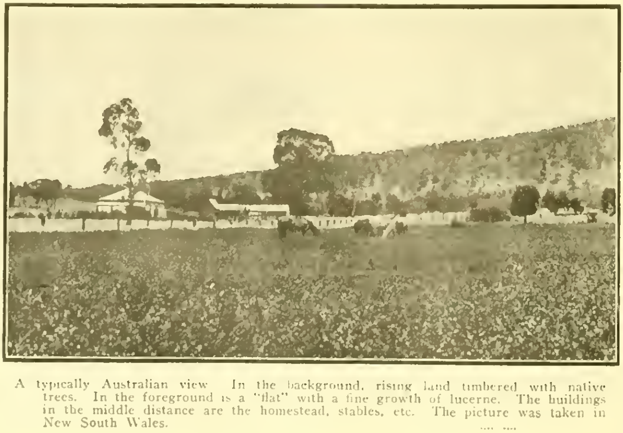
While it would seem that, under favorable circumstances, the disease might be transmitted by honey, the chances that this is done are much less, probably, than one would at first expect. Certainly, after 2, 3 or 4 months of spring, summer or fall temperature, the germs would be destroyed and no disease could result from such a source.

In most instances Nosema-infection does not spread rapidly from the infected bees of a colony to healthy ones of the same colony. This statement is supported by observations made on the disease, as it is encountered in nature, as well as in experimental colonies. During the studies made in 1912, on the apiary already referred to, Nosema-infection was found in all of the colonies, at one time or another, during the year, yet the percentage of infected bees in the apiary diminished from spring to fall. In experimental colonies, as has been said, the colony tends to recover from the infection. Were it true that the infection spreads rapidly from infected bees to the healthy ones of the same colony, the effect of the disease on the colony would be very different from what it is. Less is known concerning the transmission of the disease within a colony during the winter season. That the spread of the infection, within the colony, during this period, is not great in most instances, is evident.

**Likely Source of Infection From Nosema**

The watering place may be a likely source of infection. That bees void their excrements while on the wing and soon after leaving their hive, is certainly true for flights made during the warm days of winter and early spring. Beekeepers will know whether this is true for other seasons of the year. The excrement of Nosema-infected bees, falling into a body of water, contaminates it with germs and makes it a fruitful source of infection. This is true since the parasite remains alive for a considerable period in water. Should the body of water be a rapidly moving one, the chances for infection would be very much reduced. It will be readily seen also that the chances for infection would rapidly diminish as the distance of the water supply from the apiary increased.

"Wonga Wonga" vine. No, it is not a giant swarm of bees, but a vine indigenous to Australia. The photograph shows that it has almost covered a "rung" gumtree. The gumtrees are killed by a complete ring around the trunk, but a pine cannot be disposed of that way.



A typically Australian view In the background, rising land timbered with native trees. In the foreground is a "flat" with a fine growth of lucerne. The buildings in the middle distance are the homestead, stables, etc. The picture was taken in New South Wales.

**Robbing a Possible Source for Nosema-infection**

Colonies which become weak, as a result of Nosema-disease, naturally are an easy prey to robbers. Definite observation to show that the robbing of hives, which have housed such colonies, results in infection, has not been made, however. Indeed, when frames from such colonies have been inserted into healthy colonies, the disease has not been transmitted to any appreciable extent. That robbing, in connection with Nosema-disease, is of less importance to the beekeeper than it is in connection with the brood diseases is evident. Until more has been determined, however, it is well for the practical beekeeper to consider robbing as one of the possible sources for the spread of the disorder.

### Diagnosis of Nosema-disease

With very little experience beekeepers can diagnose Nosema-disease satisfactorily at the apiary. A weak colony, in the spring of the year, should be suspected. Since there are many conditions which cause colonies to become weak, a further examination is always necessary. This is done by catching and removing the stomachs of about 10 field bees of the colony, and noticing the appearance of these in a way which has already been described in this communication. Often fewer than 10 bees are sufficient, while sometimes it is desirable to examine a larger number. Fairly strong colonies may contain a considerable number of Nosema-infected bees. This occurs, however, less frequently than with weak colonies. Not uncommonly one may find a small percentage of diseased bees in colonies which otherwise appear entirely healthy.

### The Chances of Recovery in Nosema-disease

As has been pointed out above, there is a strong tendency for a Nosema-infected colony to recover from the infection. Some colonies die, but fortunately the percentage is small. If more than one-half of the bees of a healthy colony, upon examination, are found to be Nosema-infected, the chances that the colony will recover from the disease are decidedly unfavorable; if practically all of them are diseased, the colony will surely die; if less than one-half of the bees are diseased, the progress is fair for recovery; if only a small percentage are diseased, death of the colony is not to be expected.

It seems probable, from the observations thus far made that the losses sustained from the death of colonies does not represent the major losses to the beekeeper in Nosema-disease. The weakness produced, in colonies that live, may be the larger factor, the colonies being weakened at a time when it is especially desired that they should be strong. In this respect the disease is more like sacbrood than the foulbroods.

### Conclusions

If the beekeeper has gotten the view of Nosema-disease which the writer has attempted to convey by these discussions, he has gained the following impressions:

Nosema-disease is no new disease, but one which has been among bees for a very long time.

The disease may cause the death of colonies or may only weaken them.

Like sacbrood, it is very widely distributed.

It does not produce the heavy losses, in infected apiaries, which are common for the foulbroods. In this respect, also, the disorder is like sacbrood.

The losses resulting from Nosema-disease are greater than those from sacbrood. It is, therefore, a disease of considerable economic importance.

It is caused by a parasite (**Nosema apis**) which attacks the stomach of the adult bee.

Blossom of the Buckeye, or Horse Chestnut

Workers, queens and drones are susceptible to infection, the brood is not.

Outside the living bee, the germ dies in a rather brief period, and is quite susceptible to heat and other disinfectants.

Neither drones, queens, simple contact with infected bees, drifting bees, hives, bee supplies in general, nor flowers, are to be feared as fruitful sources of infection in the disease.

Diseased colonies possess a strong tendency to recover from the infection, without attention from the apiarist.

There is much yet to be learned about Nosema-disease. The facts which have already been determined, however, are sufficient to make it possible for the practical beekeeper to devise methods, for the treatment of the disease, which will be both efficient and economical.

Those who are interested in reading further of the studies that have been made on the disorder may find Bulletin 780, of the United States Department of Agriculture, of some interest.

## The Buckeye or Horse-Chestnut

THE buckeye or horse-chestnut, (**Aesculus**) is widely distributed and well known because of the poisonous properties of the peculiar nut-like fruit, everywhere called buckeye. There are several species, with minor differences. The photograph is of the blossoms of the Ohio buckeye ( **Aesculus glabra.**) This species occurs from New England west to Iowa, Kansas and Oklahoma, and south to Georgia, Alabama, and east Texas. There is a species common on the Pacific Coast, known as the California buckeye (**Aesculus californica.**)) This species is reported as yielding considerable honey in some localities in California and some beekeepers think it is poisonous to the bees.

The buckeye is widely mentioned as a honey-plant, though there are few localities where it is sufficiently abundant to be important as a source of surplus.—F. C. P.

## Habits and American Foulbrood Treatment

By Arthur C. Miller

I WONDER just what makes men slaves to apparatus, why they use certain implements when they can do better without them? In "shaking" for the treatment of American foulbrood how often we find the first shaking made onto a full set of frames all nicely fitted out with foundation starters. And, oh how often, it is hard to change the operator from such practice and get him to use a simple box or a hive without frames, letting the bees build onto the cover such bits of comb as they will.

For the second shaking, full sheets of foundation should be used, with frames carefully wired, the wires stretched so tight that they will hum when struck, and for best results in rapid resumption of comb construction and brood rearing the foundation should be painted with melted wax (the Vogeler process).

In addition it is exceedingly good practice to give food to the colony after the second shaking and for this purpose candy or soft sugar is preferable to syrup. Most any of the soft, moist, cream-colored sugars work well in a division-board feeder. "Raw" sugar is even better when it can be procured. Candy suitable for the purpose is simply granulated sugar and water boiled until it will make a hard candy. A cupful of good honey to each ten pounds of sugar and boiled in improves it. Such candy is poured into shallow cake pans, filling them to one quarter of an inch from edge. Leave the candy in the pans and invert one or more on top of frames and the bees will lick away at under surface until it is all consumed. Leaving the candy in the pans prevents the absorption of moisture except where bees can lick it off and the candy stays firm and solid until consumed.

The food is always an advantage after shaking the second time, for the bees' sacs are empty, and if adverse weather condition arise the colony is not only saved from disaster but has a reserve store of food which maintains the work at a steady pressure.

The painting process not only prevents stretched foundation but it enables one to use very thin foundation. Standard brood foundation runs about 7 L sheets to the pound, and at present prices costs 10c per sheet, or $1 for ten frames. Light brood running 12 L sheets to the pound costs 7½c per sheet, or 75c for ten.

Providence, R. I.

AMERICAN BEE JOURNAL
Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton. Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.
All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF
C. P. DADANT ........ Editor
FRANK C. PELLETT ........ Associate Editor
C. C. MILLER ........ Questions Department
MAURICE G DADANT ........ Business Manager

(Copyright 1919, by C. P. Dadant.)

## THE EDITOR'S VIEWPOINT

### Translations

Each nation considers itself the greatest on earth. **We** have won the war, even if the Italian, the English, the French and the Belgian,severally know positively that **they** have won it. It is thus in every pursuit. Each nation thinks itself just a little better than the rest, even in beekeeping.

But when we think of the past progress, we are compelled to acknowledge that, if we are the most practical beekeepers, we owe a great part of our success to the discoveries of other nations. Parthenogenesis was not discovered here, neither was the invention of the honey extractor, nor that of the comb-foundation. We must acknowledge that we need other countries and the information that they can impart. So translations of interesting subjects are imperative.

Some of our contemporaries publish clear translations of bee subjects and make use of them by comparing them with other contributions from different nations. In the present number we see L'Apicoltore bringing together statements from the American Bee Journal and from "Die Bienen" on the same subject. It makes interesting reading.

We are always proud to see quotations from our magazine in foreign publications, and this happens often. But some of our brother editors, in foreign countries, are not sufficiently strict in the selection of a translator. In our December, 1918, issue, there is an editorial which begins as follows: "We have been trying for several months to secure satisfactry information concerning the extent to which the bees work on the tobacco plant." A contemporary magazine translated the article and the above sentence was so distorted in the translation that, if we retranslate it into English, it reads as follows: "We have been criticized by several monthly reviews, concerning positive and satisfactory information in regard to the extent to which the bees work on the tobacco plant."

This is not the only instance in which incorrect translations have been made into foreign language from the American Bee Journal, and that is why we wish to call the attention of our foreign brother editors to the matter.

### Off to Colorado

Our Associate Editor is spending some time with the beekeepers of Colorado. With note-book and camera he hopes to bring back some of the best of Colorado beekeeping for the pages of the Journal during the fall and winter months. Some of America's best beemen are to be found in the Rocky Mountain region and we believe they will have something worth while for him.

### A Quarantine Law in Florida

The Florida Legislature has recently enacted a law placing the control of bee diseases under the State Plant Board in charge of Wilmon Newell. An appropriation of $10,000 has been provided to enforce its regulations. There is, as yet, but little foulbrood in the State of Florida, and an attempt will be made to prevent its being introduced from other States. Stringent regulations against the import of bees or equipment without a certificate of inspection have been adopted. Since the Plant Board has a large number of inspectors in all parts of Florida, it will be difficult for bees to enter that State by freight, mail or express without passing under the eye of one of these inspectors. Beekeepers who intend to ship bees to Florida should communicate with Mr. Newell at Gainsville to make sure they are able to comply with the regulations. Otherwise they may find themselves in serious difficulty. Few States have taken up the matter of disease control until it has become so widely spread as to be impossible of eradication. Since Florida is still comparatively free from it, we hope they will be successful in keeping it out. Mr. Newell is a thoroughly competent man and can be expected to act with the utmost good judgment.

### Daily Field Trips of a Worker

The oldest Italian bee magazine, L'Apicoltore, gives every month quotations from bee literature. In its June number, we find a translation of our editorial on page 121, April, in which we quoted Mr. Demuth on the number of trips which a worker bee makes to the field in a day. The reader will remember that the average found by him was only 4 trips. We were astounded at so small a number and the Italian editor, in quoting us, remarks:

"The Signor Dadant had cause to be astonished and we are glad to report on this question the experience of a beekeeper, mentioned in July, 1914, by 'Die Bienen und ihre Zucht.'

"A beekeeper of Holstein made notes on this matter that are worthy of respect. He colored six workers with different colors and sat by the hive that contained them from 6 in the morning until 7 p. m., with a note book, a watch and a pencil. Each marked bee, as it went in or out, was made note of, in such fashion that by evening the tablet looked like a railroad time-table. He remained there the whole 13 hours, even taking his meals near the hive. The observations were continued the following day. The number and the duration of the trips corresponded with those of the first day

As result of this experiment, the persevering observer stated that he now knows that bees make neither 40 trips, as reported by Zander, nor 25, according to Klaus, but only about 10. In addition, he ascertained that their flight lasted from a half hour to 2 hours, an average of an hour, and that the bees at each trip remained but a short time in the hive, between 5 and 10 minutes."

The Italian editor adds: "The evident result of variety of observations is that the number and duration of the flights are, and must be, varied, according to the extension of the bloom, the abundance of nectar secretion, which is exceedingly variable, and the distance to be traveled. An accurate study of this question may be of value to calculate the divers conveniences in the location of an apiary."

### Winter Stores

It may seem a little early to talk of winter stores, in September. Yet this is the month when, in most of our Middle States, the bees store the surplus needed in the brood-chamber for the use of the bees, not only for winter, but for brood-rearing in spring.

The older we are, the better we realize that the bees are too often restricted, for stores, to an insufficient amount. In the production of extracted honey, especially when the supers are of easy access to the bees, they often fail to store a sufficient amount in the lower story to carry them through. Not so in comb-honey production. In the latter case, they always, or nearly always, crowd the brood-combs with honey, so that the queen may even be narrowed down to a few combs only for breeding. Both of these conditions are bad. If the breeding room is deficient, the amount of brood reared at the proper time to furnish a good cluster of young bees for winter will be inadequate. A small winter cluster in a hive full of honey is as bad as a larger cluster with insufficient food.

This is the month when we must investigate the conditions of the brood-nest. If too little honey is placed there, we find it quite beneficial to crowd the bees into a smaller number of supers, so that enough of the crop may be placed in the brood-nest, above the cluster, where it will be handiest. If two stories are used for winter, we may find the lower one so destitute of honey that it is of but little use, unless we follow the method of the Canadian leaders, who give the bees sugar syrup in order to get the brood-combs well filled. It is very important to attend to this matter before cold weather, or as soon as the crop shows signs of terminating.

How much is needed for good wintering and spring breeding conditions? Many of the treatises say 25 pounds. This amount may be sufficient, if the early flowers yield plentifully in spring. But if, as we see it often, the spring days are unfavorable, the above amount will prove inadequate. We prefer as large a winter store as 40 pounds, for a good, strong colony. If they have plenty they will not shirk their breeding and will give us better returns the following summer.

If the hive is crowded with too much honey, in early September, it will prove beneficial to remove one comb from the center of the brood-nest to allow the queen some laying room.

We need a good force of young bees for winter and a large amount of stores, close to the cluster.

### Failures

We would caution our readers against ordering bees or queens from old advertisements unless they make sure that the parties are responsible. We have found it necessary to refuse the advertising of several who have failed to make good their agreements. We try to use every precaution to ascertain that our advertisers are responsible, but some who have furnished satisfactory references at the start have failed. As soon as we find an advertiser to be dishonest or unable to meet his obligations promptly we refuse his advertising. Some breeders have discontinued advertising because they already have more business than they can care for; others have been refused space. Orders from current advertisers are most likely to receive satisfactory service.

### Honey Prices

There are too many producers who are unable to see that it is worth something to sell honey. The man who enquires the wholesale price and then proceeds to sell to his neighbors at about that figure is doing all within his power to ruin the market. The bottler must get enough above the price he must pay to cover the cost of freight, labor, containers, labels, advertising, rent, etc., and to provide a living beside. If he finds the producer is selling at retail at about what he must pay for honey his only recourse is to lower the price. If the producer meets this condition by again selling at retail at about wholesale prices the market again is depressed until ruin faces the business.

The cost of bottling and selling honey is heavy. Unless the producer is willing to sell his honey at retail at prices which will enable the bottler to live, he should sell his honey in a lump in the wholesale market.

The only hope for a prosperous industry lies in maintaining a sufficient margin between wholesale and retail prices to furnish an inducement for good men to make a business of developing the honey markets.

### Mould as an Enemy of Adult Bees

In the present number our readers will find the translation of an article from an Italian magazine, upon the work of the Swedish scientist, Turesson, who is attempting to prove that the so-called May disease, of the adult bee, is due to a fungus of mould.

The reader will notice that the writer of the article in question makes light of the nosema, as a bee disease. We suggest that the trouble lies in believing that all the diseases of the adult bee may be condensed into one. Yet it is sufficiently proved that, among these diseases, paralysis, vertigo, Isle of Wight, constipation, some are more or less contagious, while others are light, of short duration and unimportant. It seems, also, to us, that when the stomach of bees is coated heavily with the nosema, of which examples have been shown in our July number, there must be a very positive diseased condition, and that Dr. White is right when he specifically describes that condition as "nosema disease."

But the Turesson experiments appeal to us. The so-called paralysis which we see constantly, in spring, in our Northern States, comes at a time when the weather is damp, chilly and favorable to the production of a musty condition within the hive. So, as long as our knowledge of the cause of these diseases amounts only to a number of interrogation points, let us not discard any suggestions until the arguments and the facts given are pumped dry. Experiments are valuable and valuable are the men who know how to properly conduct them.

### Horticultural Complaints

It appears that in a town in Algeria, the City Council lately passed a resolution condemning beekeeping in the vicinity, because the bees deteriorate fruits through the removal of the honey from the blossoms. They hold that this affects the flavor of the fruits, and renders them tasteless. What next? (Nahhla).

# SOLDIER BEEKEEPERS

By E. F. Phillips

SOMEWHERE there are statistics to show that a large proportion of the men engaged in the retail grocery business fail. Not being interested in the grocery business except as an ultimate consumer, I have not taken the trouble to verify this statement. However large the per cent of failures in the grocery business, it is fully as large in beekeeping, with one important difference. When a grocer fails he soon finds it out, but thousands of beekeepers are miserable failures and never do make the discovery. This is absolute proof, of course, that beekeeping is a branch of industry well worthy of effort, for if one can fail and still keep going it speaks well for the returns to be attained under the right management.

Because of the uncertainty of success one should hesitate about urging anyone to take up beekeeping. The uncertainty is not so much in the secretion of nectar, although, as every beekeeper knows, this varies more than we might wish. Yet we have all perhaps seen innumerable instances where the good beekeeper gets a crop when other beekeepers all about him experience a failure. The difference is really in the amount of brains applied to the business. Strangely enough, this does not always mean the amount of brains possessed by these persons, for many people do not fully apply to beekeeping the brains which they have. You cannot, therefore, tell in advance who will make the good beekeeper.

In spite of—or perhaps because of—a considerable amount of experience in answering questions of beginners and of trying to guide them through the early days of beekeeping work, I never try to help a beginner without a feeling that perhaps it is the wrong thing to give encouragement to a new beekeeper, who will, according to the law of averages, stand about one chance in a hundred of doing anything really worth while in beekeeping. But it is not my fault if they fail to apply themselves to this work, to study the literature, and especially to study their bees. If all teachers worried too much about the use to be made of the subjects taught, we probably would not have any schools, and all that any teacher can do is to do his best.

There is, however, another angle to the teaching of beekeeping, and that is the danger from the average small beekeeper. Apiary inspectors are almost unanimous in condemning amateur beekeepers and farmer beekeepers, making almost no exception to a universal condemnation, and anyone who tries to clean up an area of either brood disease will probably feel the same way. Commercial beekeepers, may their tribe increase, usually feel the same way about the beekeeper with a few colonies, partly because of the disease situation, partly because so many markets are temporarily injured by ignorant marketing of honey—and partly on general principles. The way of the amateur is a hard one, and yet probably every reader of this journal knows one or two, perhaps more, amateurs who are really better beekeepers than most commercial producers.

In this hasty and unsatisfactory manner I have tried to show why it is far from wise to do anything to increase the number of amateur beekeepers in the United States. We have already more beekeepers than we need—ten times over, perhaps. It is true that we need ten times the the present number of good beekeepers, but the wise policy at present is to make better beekeepers of those now in the work, rather than to try to make more beekeepers. This has been the policy of the Bureau of Entomology, and I hope it will continue to be so for many years.

There is one outstanding exception to this, however, and it is about this class of persons that I want to write. There are many men returning from France who have suffered some disablement, disqualifying them for the work in which they were engaged before entering the army.

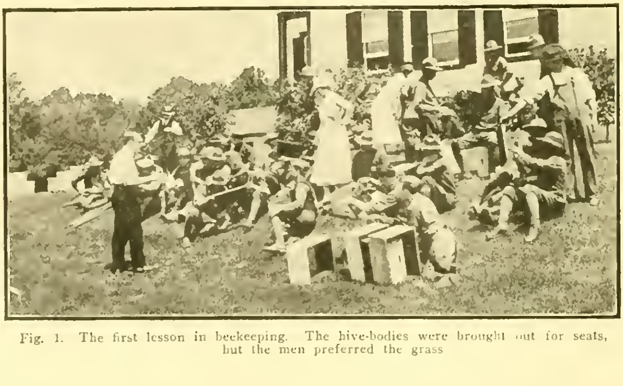


Fig. 1. The first lesson in beekeeping. The hive-bodies were brought out for seats, but the men preferred the grass

Fig. 2. He thinks they are German bees.

While a commercial beekeeper needs to be in fine physical condition to do his best, it yet remains true that the most important part of a beekeeper is the part above the neck. If, therefore, there are some of these disabled men who can better find themselves in beekeeping than in other lines of work, if they manifest the right kind of interest and show a disposition to study the business, I, for one, shall be glad to see them take up the work, and shall be delighted to see them enter the ranks of commercial beekeepers. We owe these men a debt which we can never fully pay, but if we can make their lives better and happier by helping them get a start in commercial beekeeping, there should be nothing but the best of co-operation from the commercial beekeepers of the country.

The Government, through the Federal Board of Vocational Education, offers disabled men training in whatever lines of work they decide upon for re-education. If they choose beekeeping they may go to some school or college where a good course is offered, and every possible aid will be given them during the period of training. Unfortunately, not all the agricultural colleges offer good courses in beekeeping, but this important work is rapidly increasing.

Just as an experiment, the Bureau of Entomology recently invited some of the boys from the Walter Reed General Hospital in Washington out to the new Bee Culture Laboratory in Somerset, Maryland. They came

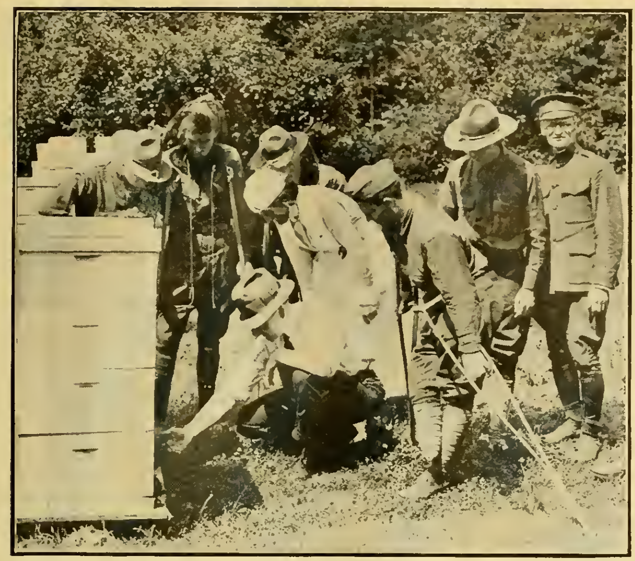


Fig. 4. Into a machine gun nest. Captain Deming, of the Reconstruction Division at the right

out in trucks and automobiles furnished by the Red Cross and were under the direction of the Reconstruction Division of the Army. On their arrival they were given a demonstration in handling bees, with a discussion of the life history of the colony and a brief talk on just what it is that the beekeeper has to do. At first they were given frames to handle from which the old bees had been removed, so that there would be no casualties. A few of the men who had been through gas attacks and barrage fire took to the bushes, but most of them stuck it out, and their courage increased as time went on and no fatalities occurred. Then they were taken to the apiary—without veils, because the supply which had been ordered had not arrived—and some honey was removed from the hives. A small extracting outfit had been set up out in the open and a few gallons of honey were extracted. A movie man came out for the occasion, and I think he tried to get a picture of that operation. If any real beekeeper ever sees that movie I trust that he will not think that we advocate the methods there shown, for it was difficult to uncap artistically with a few dozen hands ready to catch the cappings as they came off the knife.

Perhaps the most interesting part of the afternoon for the more timid men came after the honey was in a bucket, for the women of the local Red Cross unit then appeared with hot biscuits and coffee and we went back in the grove beside the house and re-stored that honey.

The accompanying illustrations give an idea of the good time and serve also to show something of the character of the new house and grounds used for the Bee Culture Laboratory and apiary. The date was May 27, and while there were some supers on the colonies more were added later. The bees were really ready for more then. Note the fine windbreak of the apiary and the arrangement of the colonies in groups of four for convenience in winter packing. And if the reader has any qualms about the making of too many beekeepers, or any selfish ideas about keeping the beekeeping business all to himself, please note the poor fellows with one leg. One man had his jaw shot to pieces and it is being rebuilt; several had a hand off and there were other injuries which do not show in the illustrations. Perhaps the question may be raised whether disabled men can handle bees successfully, but this has already been answered by those who in spite of such disablements have made a success of commercial beekeeping. Of course, most of our guests will not go in for beekeeping, but there are many more who were not with us on May 27.

Among the illustrations is one of the Bee Culture Laboratory at Somerset, Maryland (cover.) It needs no discussion to show that this is more comfortable than an office in the middle of Washington, and it is right by the bees. The office was moved here on February 1, and the bees were also moved at that time, which is somewhat unusual. However, the moving did not start brood-rearing, as was feared, for there is nothing worse for a colony than to have brood-rearing start out of season. It took careful moving to prevent this. After the moving only part of the colonies were re-packed, but the weather was so mild that no harm came to the unpacked colonies, and they are all busy storing honey.

Washington, D. C.

## Cellar Wintering

THE following letter may prove interesting to many who practice cellar wintering. Although it is probably best to spend the most of our space in trying to tell beekeepers how to winter their bees, an occasional report of failure may prove beneficial. The writer of the following, received last May, prefers to keep the incognito, but we can vouch for his veracity:

"For many years I have had both a home and outyard of bees. The home cellar where the home bees are wintered, is under our dwelling house,

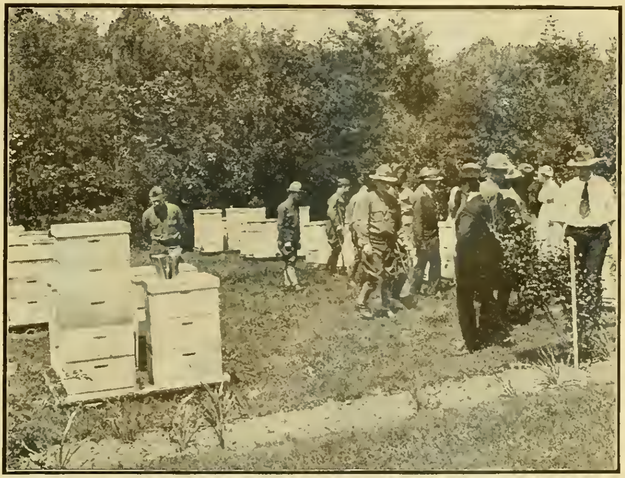


Fig. 3. The boys who had been "over the top" were not too sure of themselves among the bees

and has to receive some attention to keep the temperature right. The out-cellar has never really required any attention from the time the bees were put in until I took them out in spring; although I usually visited it once to three times. Both cellars had arrangements for ventilation.

Wanting to spend the winter in Tennessee, I put all my bees in this out-cellar, thinking they would be perfectly safe. My reason for doing this was that no one would be in my home, while I was away, to look after the home cellar. During the summer I had done some repairing at the out-cellar, and when I put the bees in, the ventilators were yet to be put in again.

At our State Convention Mr. —— a representative from the Bureau of Entomology, gave us a lecture, the principal part of it being that they had found a new and much better way of wintering bees than was generally known. He said it had been thoroughly tested and found to be far superior to any other method. He said if the temperature of cellar was 50 degrees, the bees were so quiet and comfortable and in such a dormant condition that they required very little oxygen and wintered very much better with all ventilators closed perfectly tight than if given air. I remembered that Doolittle said the same thing years ago. The cellar must be at that temperature when the bees were put in. I never until last fall had my cellar so warm as that, when the bees were put in, but it was this time. Heretofore my home cellar would always get up to that the latter part of March, and I would have to take them out early, for they got uneasy.

Being anxious to leave my bees in perfect condition while away, it appealed to me quite strongly. I had a talk with him about it and told him of my intended trip and how my cellars were, etc. He said to shut it up perfectly tight and all would be so good I would never give ventilation again. Then I talked with Prof. ——, who, though not a man of much experience with bees, said he was going to winter our State University bees that way, and said he knew that was the proper way to do. Being in a hurry to get off to the South, and as this would save me a day's work from putting in ventilators, I yielded my judgment and experience to theirs and "bottled my bees up tight" and made for the Southland.

The outside temperature has never materially affected that cellar, and I have had that many hives in it before. The temperature was just 50 degrees.

We had our cold week just after January 1, which was the coldest spell we had this winter. Immediately after I left, the 13th, it warmed up and was warm all the while I was gone, but I cannot see why this should have affected the cellar much, being three feet under the ground. There is three feet of earth over the top. It is true we had the warmest winter we ever had, and possibly it made some difference.

The first week in February I wrote to a man to go in the cellar and report conditions to me. He wrote the bees were several inches thick on the cellar bottom. I went home from Nashville as quickly as possible, which was about the middle of February. I never saw such a sight and hope to never again. It seemed the bees could smell a little air coming in around the door and had deserted their hives and gone towards the door until the hives nearest it had bees four to six inches thick on the fronts, and many hives farther back had not a bee in them, and the cellar registered 62. I shoveled up about eight bushels of dead bees and opened the ventilators and the cellar cooled down to normal, and after that but few bees left their hives. As a result, the hives that had any bees in when I removed them from the cellar had from a cupful to a pint, or a little more, to a hive. The weather has been extremely hard on even strong colonies, and at present I have, from 109 fine colonies last fall, probably 20 to 25 three-frame colonies to start beekeeping with again.

I cannot say what the result would have been if there had been cold weather instead of warm, but this I know, I shall let well enough alone hereafter and experiment on a smaller scale. Had I been at home and wintered as usual I am positive my bees would be in fine shape now.

Fig. 5. "Chow" back in the grove, served by Red Cross

It is impossible for me to have any clover honey this year and I can only run for increase and get my number as far as possible by fall.

Prof. —— wrote me that most of the University bees were gone with dysentery. I wonder if it was that or want of air."

## Large Hives Again

YOUR large brood-chamber propaganda is attracting considerable attention in this State and I find a number putting in a few Jumbo hives this year for a test.

In discussing this large brood-chamber matter with President Barclay, he said he understood that if you were starting anew you would use the Jumbo depth Hoffman frame. I did not get this from your talks. Is it true?

E. G. CARR, New Jersey.

You are both right. I do not think that I would take the Jumbo hive for my standard, if I took in consideration nothing but my own system.

But, in consideration of the existence of the Langstroth hive length all over the United States, I did say that if we were to begin over again, we would use the standard length of the Langstroth hive, with the depth of ours, which is the Jumbo size of frame.

However, I want it made very clear that I do not at all relish the spacing of the standard frames and of the Jumbo, i. e., the 1⅜-inch spacing. Never did I realize better than I have done for the past two years that the 1½-inch spacing is very superior to the narrower. I said and wrote, and am willing to repeat to as many as will listen, that the 1⅜ spacing is a promoter of natural swarming. This idea is not my own originally, it was emitted by Allen Latham, but it struck me as evidently true, because we had for years used the wide spacing and had been successful in avoiding swarming, without thinking of the influence of it upon that feature of bee behavior, while others who tried our method, but with the narrow spacing in their hives, found the method inadequate. I secured these ideas concerning the wide spacing, from Mr. Latham immediately after attending your New Jersey meetings, in 1916.

The wide spacing allows ⅛ inch additional space between each comb, through the height and length of the hive. This space, ten times repeated, between each of the ten frames makes a space of ten-eighths, or 1¼ inches, which multiplied by the length and the depth, give us something like 170 cubic inches of additional space, breathing space and ventilating space, when the hive is full of brood and bees. When the hive is filling with honey, it adds several pounds of honey above the brood, just where it ought to be, because the bees do not need all the space to travel through and therefore narrow it down by lengthening the cells. But when the breeding season comes again, those cells are shortened to the proper length for breeding, and that is when the bees need the ventilation and the room. In winter more bees cluster, between the combs, under the honey than in the narrow spaces, and the wintering is better. No one has yet been able to overthrow this position.

This discussion of large brood-chambers has been practically forced upon us, by enquirers, and has been especially urged by Frank C. Pellett, who became enthusiastic over our methods when he joined the staff of the American Bee Journal.—C. P. Dadant.

## Do Ordinary Cryptogams Cause May Disease, Wing Paralysis and Trembling of Bees?

THE knowledge concerning the diseases of adult bees is at present very precarious, said Dr. Morgenthaler, a member of the Bacteriological Institute of the Liebefeld, near Berne, and since the causes are not positively known, their diverse forms are not easily distinguished from one another. It is not known whether the ordinary symptoms—swollen abdomen, inability to fly, trembling and darkening of color, which appear isolated or combined—belong to one and the same disease. The discovery of parasites made by Zander has not yet supplied the expected explanation.

The great interest which all beekeepers take upon this question of mortality of bees, in large numbers, sometimes causing complete destruction, justifies the analysis of the work of Turesson.

This Swedish author, in experiments made in 1916, examined the toxic action of cryptogams upon man and mammiferous animals. He found that certain fungi which are very common may exercise a poisonous action, more or less powerful, upon the organs. In rabbits, fed with cultures of different cryptogams, he noted the following symptoms: At first, irritation of the nervous system, which manifested itself with trembling and spasms, a greater cardiac activity; then a weakness to such an extent that they could not stand upon their legs; finally paralysis and death. Paralysis attacked also the digestive tube, in such mode that the intestines could not discharge anything, and a constipation was produced which caused a great dilation of the stomach and of the rectum. Turesson thinks that too little attention has been paid in the past to the toxic influence of cryptogams and that, for example, some of them cause cerebro-spinal meningitis of domestic animals.

Their toxic action is due to the fact that these fungi produce substances related to phenic acid and have much analogy with the acids of lichens, which are also poisonous for various animals. The resemblance of the morbid symptoms described, with those often observed in the diseases of adult bees, induced Turesson to examine more closely the influence of nutrition with the fungi of mould. He enclosed about a dozen bees in each of 13 cages sufficiently roomy and fed the ones with honey mixed with a determined amount of various fungus of mould; the others, to serve as checks, with pure honey. The result was that one species of fungus, after 3 days, the others after 4 and until 8 days, had killed them all, while those fed with pure honey were still in good condition. The dying or dead bees had nearly all a swollen abdomen, caused by a plethora of the stomach or intestine; presenting therefore the symptoms of the May disease; only with the fungus that had caused death in 3 days did the bees appear to have a normal, non-tumefied abdomen, because in that case the venom had acted too speedily and the bees had died before having absorbed a large amount of food. The other symptoms of the malady were as follows: Paralysis of the wings, unsteady walking and trembling. The bees often rubbed their abdomen with their legs and thus acquired the shiny black color.

Five different fungi were employed in the tests; 3 species of the genus **penicillium,** the ordinary **mucor mucedo,** and the **cladosporium herbarum,** a frequent fungus which belongs to the black fungi, and had been produced in part on dead bees and in part on combs of honey. It is probable that other kinds may be found of varying toxicity and even more poisonous; the different species are of variable toxicity and it is even possible that some subdivisions of the same species may behave in different modes, and that a fungus may be fairly lenitive in one region, while the same variety becomes virulent in another, by a greater production of poison. Thus, according to Turesson, the question is not, in regard to the mortality of bees, of a properly called infection, or of parasites the germs of which develop in the body of the individual bee, but of an intoxication by means of a chemical poison. In such a case the poison does not remain within the fungus, but is transmitted to the body upon which it acts.

It is therefore possible that even sweetened water in mouldy combs be poisonous, even after the fungi have been removed. The toxic substance is not destroyed by the heat that may melt combs. The fungus of mould does not develop on virgin combs; on the other hand, every beekeeper knows that a mode of production of mould are the used combs, which are sometimes kept in an ill-ventilated closet.

The moist heat which predominates within the colony is favorable to the development of fungi. The bees must certainly use great cleanliness to avoid mould in their home and they need also ample ventilation of the hive, in summer and winter. The fall feeding with sweetened water should not be provided too late, because at that time the food cannot be sufficiently condensed, from which an increase of moisture is produced. The combs hanging in winter outside of the cluster are especially exposed to the possibility of moulding. This is one of the reasons why the symptoms of poisoning are more particularly and more frequently manifested in spring, when the bees begin to use the food in those combs, or even if they only polish them with their tongues.

This is, in brief, the summary of the work of Turesson, who believes he has discovered in the fungus of mould the cause of the May disease, of paralysis of the wings and of the trembling. Although mould has been considered bad and noxious by beekeepers, this work exposes some viewpoints that are quite new, to judge of its influence upon the mortality of bees in large numbers. The future will demonstrate whether his opinion is just, or whether, as with the nosema, the toxic influence of the mould is not too much dwelt upon. The experiments made with bees in cages are not sufficient to elucidate the matter; it is necessary that the experiment should pass through the observing of the apiarist. The imprisoned bees find themselves in abnormal conditions and the evidences upon the perturbations of digestion should be judged with increased care. In fact, a normal bee, aside from her love of cleanliness, will avoid discharging her excrements in the hive, or, in this case, in the cage; this alone is already sufficient to disturb the digestive functions from their natural process. It is true, on the other hand, that the checks made, by feeding some imprisoned bees with pure honey, who remained healthy, bespeak in favor of the Turesson opinion.

It would be most important, I believe for beekeeping, if it was confirmed that the mortality, in large numbers, of the bees, be by intoxication and not by infection produced by bacteria or by nosema; this especially in my opinion as regards the cure. In the apiarian publications are found frequent reports of favorable results obtained with curing liquid remedies. The British Bee Journal interests itself exhaustively in this question. Each number of the past year contains one or more articles giving proofs, whether successful or not, of cure of the Isle of Wight disease, which yet remains unexplained and is very disastrous. The results were lately so favorable that their Department of Agriculture took interest in the matter and offered a remedy that was recommended, Bacterol. Since the nosema was for a long time considered as cause of the disease, one could reasonably doubt the efficacy as cure of a chemical substance, since these spores are much more resistent, against such an influence, than the intestines of the bee; it would seem rather strange that a remedy might destroy those spores without being noxious to the bees in any way. Lately, it has been demonstrated, by Anderson and Rennie, that the Isle of Wight disease has nothing to do with the nosema.

In some other countries, also, the wholesale mortality of bees has been charged to the nosema, of which it is difficult to give an explanation, because this parasite is not always present in the dead bees. On the other hand, its propagation in healthy swarms has damaged its fame as a dangerous germ. I do not believe that the nosema deserves the interest of those who occupy themselves with bee diseases.

If it becomes established that the cause of the disease is not a resistent micro-organism, but a definite chemical substance, similar to phenic acid, there will be, already, a great possibility of obtaining, at least in light cases, an improvement and a cure through an antidote administered under shape of liquid remedy. The work of Turesson opens, therefore, a favorable field for observation and experiment.

However, the best prophylaxis, against diseases, must not be sought, in one case or the other, among chemical substances, but in a well-managed hygiene of the bee hive, making it a salubrious home for the bee, by rational management.

(Translated from L'Apicoltore Moderno, of Turin, May, 1919.)

## Boys and Bees

IN all my experience of high school teaching, I have never found a more ideal combination of work and play than in my course in Bee Culture, which I am conducting in the Montezuma Mountain School since the summer of 1918.

The enthusiasm and thoroughness with which my students work in the shop and laboratory, as well as around the bees, is evidence enough that such a course is a desirable feature in high schools of the Montezuma type. Such a course can easily be made a subject of highly scientific merit as well as of practical value, as it keeps our boys busy and interested all the time and brings them closer to nature by our frequent afternoon excursions to my different outapiaries, which are located in the neighborhood of the school.

WILL C. STEINBRUNN,
Los Gatos, Calif.

A students' apiary at Montezuma Mountain School, under Prof. Will C. Steinbrunn, at Los Gatos, Calif.

## Introduction of Virgin Queen

By Elvin M. Cole

IN Dr. Miller's Answers, page 19, of the May Journal, "Wisconsin" asks what to do with pollen-clogged combs.

I suggest this plan: With the end of a knife or hive tool, scrape the pollen-filled part of the comb down nearly to the mid rib on both sides if necessary. With combs that are slightly brittle there is little danger of making a hole in the mid rib, and both sides can be scraped in about a minute. Give them back to the bees during a honey-flow.

Tough, leathery old combs may be easily cleaned on one side in the same way, but it requires care when cleaning the opposite side; however, most combs will be badly loaded with pollen on one side only.

After starting tough combs with the knife the cells may be peeled from the base with the fingers.

I have had but little experience in introducing virgin queens as discussed by Dr. Miller, page 17, January, and Wm. Atchley, page 170, May, American Bee Journal. But G. M. Doolittle goes quite deeply into the subject in Scientific Queen-rearing, and gives the law that governs the action of bees toward a virgin queen. It is in scattered paragraphs on several pages and two chapters, and requires careful reading to get it.

The "basic law" is the same as in Mr. Atchley's plan, and the plan used by Mr. Alexander for introducing two or more queens to a colony. I believe it is the only method of introduction which Mr. Doolittle claimed to have originated. He shook bees into a box and left them for 3 or 4 hours, or until they realized that they were hopelessly queenless, then dropped in a virgin queen of any age. In hiving them in the nucleus box, he says, page 61: "Do not give them any unsealed brood, for if you do they will sometimes kill the queen and rear cells from the brood given. It is not natural for a colony to have an oldish virgin queen when they have eggs and larvæ, for in nature all brood would be sealed before the young queens were three days old."

In introducing to a nucleus from which a laying queen had just been taken, he took away all brood and gave her a cage which allowed the bees to release her in 8 to 12 hours, by which time they would realize they were hopelessly queenless without her.

On page 87 Doolittle says: "For in nothing are bees so determined as they are not to accept a virgin 5 or more days old after having their mother taken from them. I have never lost a queen in this way, no matter if she were 12 days old when placed in the cage, and I consider it an absolutely safe plan for introducing a virgin queen."

Mr. Doolittle considered this plan of introducing laying queens to hopelessly queenless bees to be infallible, and says, page 80: "I have used this plan with all valuable queens for several years, and have not lost a single queen, nor do I believe that I ever shall lose one."

It would be a great help to young beekeepers if you would "lift out" the different paragraphs giving this "hopelessly queenless" method of introduction and print them in consecutive order.

I consider Scientific Queen-rearing the most interesting and helpful bee book I ever read, and I have read most of the modern ones, even though I never expected to rear a queen by that method.

About every so often you may count on seeing some of Mr. Doolittle's ideas yanked out of this book, a few unnecessary frills added, and given to the beekeeping world as something new; as witness: Alexander's plan for introducing plural queens (which is this hopelessly queenless method), A. C. Miller's smoke method, Baldwin's dipping the queen in honey, Atchley's introduction of virgin queens, etc. Verily great was G. M. Doolittle.

Audubon, Iowa.

## A Little Pioneer History

A WAR song, famous in its day in Marion County, has been revived and will be sung in the celebration of the 100th anniversary of Marion County's birth, in Palmyra this month by the sons and daughters of soldiers who left Palmyra in 1839 to begin the first civil war in the west between Missourians and Iowans. It was called the "Honey

War." The dispute, which was over a 12-mile-wide tract of wild timber land, foreshadowed the mighty conflict that two decades later hurled Missouri and Iowa men, tiger-like at each other's throats.

In the disputed territory were many bee trees. This gave its name, the "Honey War," for both the pioneers in Iowa and Missouri adjacent to the strip coveted the privilege of cutting the bee trees and securing a supply of "sweetnin." Men of a later age, who find sugar in every store, may not be able to understand the fight for the wild honey, the only source of sugar then for household use.

### Foreshadowed Civil War

Despite its title and absurd ending, deeper reasons led Governor Lilburn W. Boggs, of Missouri and Governor Lucas, of Iowa Territory, to call out the militia of State and Territory to march to repel invasion. "Black Ivory," not golden honey, was the real issue. Some pioneers in the section held slaves, who would be freed if Iowa gained possession of the strip. Their fellow-slave owners in Missouri were in full sympathy with their desire.

In August the sheriff of Clark County, was taken prisoner by Iowa militia when he was tax collecting in the disputed strip. This stimulated the war spirit, and in November Governor Boggs, of Missouri, called out the State militia. Gen. David Willock, commanding the 14th Militia District, a Palmyra man, and Gen. O. H. Allen, of Lewis County, were ordered to take the field. Col. John Lear, of the 56th Regiment, M. S. G., and Capt. Thomas P. Stewart, of Palmyra, called for volunteers to augment the regular forces, and as the drum beat, the long roll Palmyra men with rifles and horses responded. Soon 2,200 militia and volunteers were on the march for Iowa, with more than 50 men from Palmyra. In the same spirit the Iowa "free soldiers" rushed to arms and moved out to hold the debated ground.

### Off to Waterloo

December 12 the Marion County men started for Waterloo—ominous name—in Clark County. The first night was one of torture. Assailed by rain and snow, without camp equipment and supply wagons on Upper North River, huge log fires alone saved the men from freezing. Another day's march in the slush roads and icy winds brought them to another camp as bleak and forlorn as the first stop.

In this camp, on the Troublesome Creek, the peace messengers came. Col. Thomas L. Anderson, F. H. Edmonson and S. M. Grant, Missouri diplomats, met William Patterson, Dr. J. D. Payne and L. B. Hughes of Iowa in Waterloo and reached an agreement for the armistice. The commissioners decided to appeal to the United States Government to decide the sovereignty of the honey lands.

### Governors "Labeled and Shot"

Disgusted with the tame ending to their plans for martial glory, the Marion County men opened up a barrel of whisky, hung two haunches of venison to trees labeled Governor Boggs and Governor Lucas and filled them with the bullets that they had planned to use in winning the Honey War. When they marched back to Palmyra many of the men turned their coats inside out and all sang the rollicking lines of the Honey War song.

Lewis County men were harder to appease. A convention was held in Monticello and fire-eating orators denounced the commissioners, the governors and everyone else who had prevented a civil war. A year later the United States awarded the honey lands to Iowa, and it is noteworthy to recall that this award was made on the recommendation of a Capt. Robert E. Lee, who made the survey in 1837, and who, 25 years later, was to win immortal glory when he led the Missourians in another and far bloodier civil war.

### The Honey War Song

The Honey War was ridiculed in a poem written by a Palmyra rhymster, and it was sung in disgust by the troops who returned from the bloodless war. The poem follows:

Ye freemen of a happy land,
Arise! To arms! Your ponies mount!

* * * *

Regard not blood or money,
Conventions, boys, now let us hold;
Our honey trade demands it.
Likewise three bits, all in gold;
We all must understand it.

Now, if the governors want to fight,
Just let them meet in person.
And when noble Boggs old Lucas flogs,
'Twill teach the scamps a lesson.
Now let the victor cut the trees
And have three bits in money,
And wear a crown from town to town
Anointed with pure honey.

* * * *

Our honey trade will then be laid
Upon a solid basis.
And Governor Boggs, wher'er he jogs
Will meet with smiling faces.

—St. Louis Republic.

## Benton's Travels

EARLY in 1880, Frank Benton went abroad, where eleven eventful years were spent in travel and study, and in investigating the honeybees of Europe, Asia and Africa. Apiaries were established on the Island of Cyprus and in the Holy Lands at Beirut, Syria. In the winter of 1880-81 Ceylon, India, Farther India and Java were visited and extensive collections and studies were made of the native bees of those regions. It was on this expedition that the "jungle fever" was contracted, which ultimately claimed its own, but only after many years of active service had intervened. The winter of 1882-3 found Dr. Benton a student at the University of Athens, and the years 1884-86 were spent at the University of Munich, where he all but completed his work for the doctorate. He was granted the Master of Science degree by the Michigan Agricultural College in 1885 in view of his studies abroad; and some years later the degree of Sc. D. was conferred upon him by the Oriental University of America for similar studies. During the years spent in Munich several trips were made to Cyprus and Syria, and on one occasion Tunis and the African coast were visited and the bees of these regions studied. Italy was visited by

Benton caravan crossing Persia, in 1906

the way as was also the little province of Carniola, in southern Austria, with the result that the four years from 1886-90 were spent in the fastnesses of the Carnic Alps in investigating, breeding and giving to the world the docile bees native to these mountains.

In 1890 Dr. Benton was commissioned by Dr. C. V. Riley, the United States Entomologist at Washington, to proceed to the Orient for the purpose of carrying on further investigations of the giant bees of India, and to study and import the Blastophaga wasp from Smyrna in the interest of establishing the Smyrna fig industry in California. Unfortunately, this commission passed Dr. Benton on the high seas, as he had already sailed from Hamburg for New York in December of 1890, after an absence from his native land of eleven years.

On his arrival in America Dr. Benton was offered a chair in modern languages at Cornell University, and at the same time came an offer from the United States Government to go into scientific work at Washington. It was not an easy matter to decide, especially for one so rarely gifted in both fields of endeavor. But at the parting of the ways Dr. Benton, at the age of 39 years elected to go into scientific work, thereafter becoming only indirectly identified with academic life as an occasional lecturer. He proceeded to Washington in July, 1891, the proposed trip of exploration abroad being held in abeyance for the time being, and fourteen years intervened before this second journey was finally undertaken.

It was not until June, 1905, that Dr. Benton finally undertook his second tour of apicultural and botanical exploration which became a world embracing expedition, and everywhere he was welcomed and given the highest attention and every consideration by both scientific workers and members of apicultural societies and of the apicultural press. One leading periodical in summarizing his work closed with the statement, "Happy America that can speed **such** a man on **such** a journey!"—an index of his appreciative reception abroad. The overland route through the Balkans to Constantinople was followed and from thence the Caucasus was visited, where, in spite of the Russian revolution of that year, much data of value was collected, and representatives of the Caucasian races of bees imported. During the height of the revolution the Bishop of Armenia extended to Dr. Benton the hospitality of his monastery at Erivan, where Dr. Benton took refuge for several weeks until able to proceed to Baku on the Caspian Sea, from which point the long journey inland through Asia was started Turkestan and Bokhara were visited, from where was imported the Turkestan melon, now becoming extensively grown in this country as a table delicacy. Turning southward, Dr. Benton organized a caravan, traveling a thousand miles through Persia, reaching Teheran early in January, 1906, and India the fore part of March. During the next seven months every part of India was visited, from Quetta in the northwest to the jungles of Assam, from the plains of Jubbulpore to the Himalayas of Simla and Darjeeling, and extensive studies made of the native honeybees which were captured and kept under observation in experimental hives. The guest of His Highness, the Maharaja of Kashmir, Dr. Benton had placed at his disposal a herd of elephants and retainers which greatly facilitated the work of exploration that he was engaged in. Finally, in September, the Philippines were reached and several months were spent in a long tour of this thousand-mile archipelago. At Zamboango, in Mindanao, Dr. Benton was very ill with fever contracted in the jungles of Assam, but despite these difficulties he was able to rally and continue his work of investigation. The homeward journey was made by way of the Chinese coast, and some time was spent in Japan, Dr. Benton reaching America early in 1907, after an absence of nearly two years, with his long-planned journey an accomplished fact.

Frank Benton

## The Barbeau Queen-Rearing System

WE have received a number of enquiries concerning the above system, described in the July number. Although we have not tried it ourselves, owing to lack of time, we are informed that it is quite successful, and the fact that Mr. Barbeau offers it free to the public should not deter beekeepers from the appreciation of it. Replying to our enquiries, Mr. Barbeau sent us the following letter from one of his pupils, who owns several large apiaries. This we translate from the French:

"I am glad to be able to say to you, in answer to your request, that I have well succeeded with your method of producing queen-cells. I raised 700 queens the past summer and obtained 90 per cent of queens from the cells which I produced. With the old method I succeeded in only 35 to 50 per cent of the cases. Your method is better, for it gives less labor and secures more queens.

"The best way to succeed is to have plenty of young bees in the colonies that rear the queens. For that purpose I give the orphan colony some combs of brood ready to hatch.

"To rear queens in time of dearth, it is necessary to feed the queenless hive two days before giving it the queen-cells and continue to feed it for 6 days afterwards, provided it is strong enough."

Yours truly,
O. FONTAINE,
St. Guillaume D'Upton, Q.

The advice to keep the queen-breeding colonies fully supplied with young bees, and fresh food in plenty, is also strongly recommended by Mr. Barbeau and this advice tallies with the experience of all queen-breeders as well as with the recommendations of the writers of all the practical works on bees.

Mr. Barbeau describes 3 methods of queen-rearing by his system, as follows:

**First Method.** Remove the queen from a strong colony, and allow the bees to rear queen-cells in the natural way. But after 7 or 8 days, remove all the queen-cells, whether finished or just begun. At the same time, shake or brush into the hive, after having smoked it, the bees of 2 or 3 frames from another colony Be sure to locate the queen of each colony so as not to remove her.

Better still, if you happen to have a small swarm, would be to unite it with the queenless colony. The aim, in all this, is to have a large number of young bees to feed the royal larvæ.

Three or four hours after having prepared the colony as above stated, cut out, with the punch, such larvæ as you may wish to use from your best selected colony. Let them be larvæ about a day old, of the size of a lettuce seed. After having removed as many as you desire, 20 or 30, or more, insert them into the cupules and screw these cupules into a brood comb of the queenless colony. At the end of 10 to 11 days, the queens will hatch.

The above method is a little slow, but it is very sure, especially for beginners.

**Second method.** This consists in removing from the hive the queen and all the combs of unsealed brood. Leave in the hive only 2 combs of entirely sealed brood almost ready to hatch. Add to these also some combs of honey and, if you wish, another comb or two of entirely sealed brood and young bees from other hives. Always be particular to locate the queens of each hive so as not to give them by error to the queenless colony.

Prepare your queen-cells as before and insert them into a dry comb, which you then place in the center of the queenless hive. This comb should be placed into the breeding hive only 3 or 4 hours after having prepared the colony.

**Third method.** This consists in placing a queen-excluder between the brood-chamber and the upper story of a very strong colony. For this purpose it is necessary that the colony should fill its brood-chamber and super with bees. If you do not have any colony strong enough for that you must add bees to it a few days previously. Of course the old bees united to it will go back to their home, but the young bees will remain and it is the young bees that are needed to feed the larvæ.

If your colony is of sufficient strength, give it, in the super, two combs of sealed brood, between which you place your comb of cupules.

Should the bees of this colony refuse to build queen-cells out of the cupules, which is a rare occurrence if the colony is strong enough, you can compel them to build the royal cells by removing this super and placing it on the stand of the main brood-chamber, setting the main brood-chamber right by the side of it, but with its entrance at the opposite side, in the rear instead of the front. This operation should be performed early in the morning. The next day you place both hive and super back to their original position, with the super above the main brood-chamber. You will then find that nearly all the cupules are being worked upon. This method is rarely needed to compel the workers to construct queen-cells. It requires a little more experience than the first two methods described above.

To prepare a comb of cupules, take from the colony containing your choice queen, a comb containing larvæ a day old. Carry it away from the apiary to a convenient spot. Then, with the punch, cut out as many cells as you need and place them into the cupules with the "pusher." Then get a comb from your breeding colony and screw the cupules into it. It may then be put back in the center of the hive as stated above.

At the end of 8 days, when the cells are sealed, and the queens getting ready to hatch, build up nuclei, or make divisions, or remove your old queens and enclose your queen-cells in royal cages, so that when they hatch they remain prisoners. Within 2 or 3 days you may release them to be fertilized.

You may introduce a hatching queen in this way in a colony having a young queen ready to be fertilized. Just as soon as she begins to lay, you may remove her and release the other at the same operation. You simply take off the cover of the cage and the bees consume the candy and release the queen. By alternating in this way, you may secure laying queens very rapidly.

E. BARBEAU,
St. Eustache, Quebec.

## Introducing Queens

I HAVE no luck introducing queens; have tried every plan I have read of, smoke, syrup, etc., but they kill them; throw them out every time; have removed the old queen and destroyed cells. How long can a queen be kept alive caged, and is it necessary to keep bees in cage with her? The candy melts and drowns them for me in hot weather.

Missouri.

Try the following for the introduction of queens:

Have one of the little flat Miller queen cages that are sold for 10 cents. When you receive your queen or have a queen ready for introduction, remove the queen which you wish to destroy and place her in the cage. Put the cage between two combs in the center of the hive near the brood. After 2 to 4 hours take the old queen out of the cage, kill her and put your new queen, without any of her workers, in that same cage, in the same spot between combs of brood. After 48 hours, release her by placing a chunk of comb honey in place of the stopper of the cage. Close the hive and do not disturb it for at least 2 days. This method succeeds with people who cannot succeed with any of the other methods.

The idea of caging the old queen for a few hours in the cage intended for the new queen is to give the bees the suggestion that their queen is in that cage.

Never kill a queen ahead of time, when you wish to introduce a new one. Better not let the bees know they are queenless for a single hour.

A queen will live a number of days in a cage, alone, if in the middle of the brood-comb.—C. P. D.

Helping make the Kansas prairies produce. Apiary of A V. Small, at Augusta

## One-Story Jumbo or Two-Story L Hives

By Arthur C. Miller

IT was recently my good fortune to examine several score of colonies which were kept on two Langstroth bodies as permanent brood-chambers, and the conditions were not pleasing from an economic standpoint. With scarcely an exception, all the brood was in the upper chamber and the lower chamber contained nothing but empty combs. Some of the colonies had swarmed and others were preparing to. To make matters worse, the combs of the lower body were often badly gnawed. Here was a direct waste of nearly half the equipment, a matter which cannot be lightly passed over in these times of high prices.

When these colonies were prepared for winter last season the brood-nest had been in the lower story and the upper story was fairly full of stores. This spring the owners had simply put on the supers and let the brood-chambers alone, after assuring themselves that the colonies had queens and were prosperous. The few cases where brood was also in the lower story were where the upper set of combs were still pretty full of stores, far too much for profit.

Advocates of the two-story plan will doubtless retort that the owners should have transposed the position of the two bodies or have shifted more or less of the brood to the lower stories. But the owners object to "manipulation" as being too costly. In most of the yards examined there were also Jumbo hives, and these were proving so much more satisfactory that the owners are, as fast as possible, shifting to that style of hive.

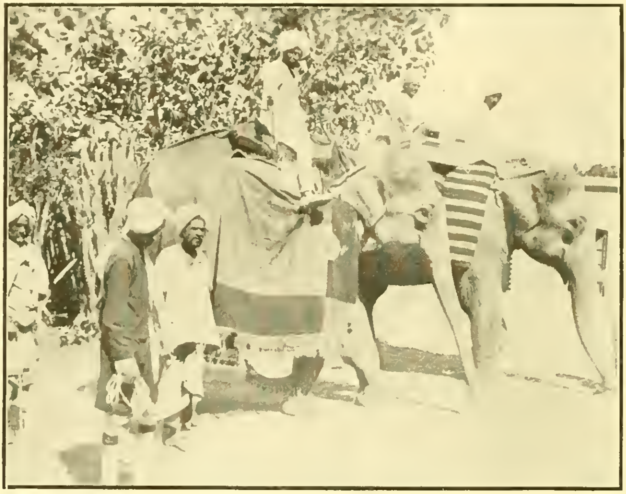
In a nutshell, the two-story Langstroth, as a brood-nest, is too big, and not only costs nearly twice as much but is of the wrong proportion and necessitates the handling of twice as many frames when a colony has to be gone through. Theoretically, the bees should not behave so; they should extend the brood-nest downward, because the text books say so. Naughty bees to put such a crimp in the sale of the two-story brood-nests.

Moses Quinby, the Wise, studied bee behavior and experimented on hive sizes and proportions perhaps more fully than anyone else has, and he finally settled on a hive that has proven itself to be right. The Jumbo is, for all practical purposes, the same as the Quinby. It is of the same depth, but about seven-eighths of an inch shorter, but has the advantage of taking all the equipment of the 10-frame Langstroth hive except the frames. Mr. Draper, the introducer of the Jumbo, then known as the "Draper Barns," builded better than he knew when he put the Quinby depth on the Langstroth length. If our supply men would only be as considerate when making innovations we would all be better off and happier. Incidentally the supply men would be less troubled with orders for "special" goods, when often those specials are merely an attempt on the part of the purchaser to get duplication of what he had before, which was "stock" stuff when he got it. I sometimes wish I could get the factory man out on an inspection trip with me and let him see what awful misfits some of the factories "made to fits" are.

Apparently the beekeeping world is shifting to Quinby size hives and the supply men will advance their own interests as well as ours if they will get together and agree upon uniformity of dimensions, so that we may not have the hundred and one variations in the Jumbos which we have in the L's.

Mr. Beeman, just study the behavior of your bees when they are allowed to follow their own sweet way. It may save you a lot of costly labor, called manipulation, and give you greater returns.

Providence, R. I.



Colony of giant bees transported on an elephant
(See Benton's Travels, page 307)

## BEE-KEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### Selecting Breeders

While examining my colonies I am always watching each queen, trying to determine which one is the best to use as a breeder. But I am always unable to pick out the one that is superior to all the rest. Quite a number appear to be equally good. When looking over colonies this way it is quite difficult to keep in mind the various points that one should consider. It seems to me that there should be some sort of a score card devised to assist one in this work. I believe all other breeders of pure-bred stock have some sort of system they follow along this line. I am fully aware that some of our largest producers do not care about a thing of this kind, but there are many that do. Most of those who do not care discover that they do when European foulbrood hits them. In my apiary inspection work I have made it a point to find out just what our different commercial beekeepers consider a purely mated Italian queen. Quite a number don't know. And nearly all are at a loss to draw the line between dark Italians and light hybrids. We should have a standard to work to. But it seems that it should be the work of several men.

Ohio.

If I understand aright the suggestion of our correspondent, it is that there should be some sort of a score card to aid in deciding the standing of a queen by direct inspection of the queen herself. It would surely be an excellent thing if we could agree upon certain things in a queen by which we could rate her value; but it seems to me that there would be difficulty in the present case.

A judge, or a set of judges, might pass upon a cow in the show ring and arrive at a decision quite satisfactory. But with a queen the case is different. With a queen before us there are three things we can see—size, form and color. What can we tell from these? Very likely most of us would say we prefer a large queen. But is a large queen always better than a smaller one? It looks a good bit that way. When a queen is in full laying a large part of her bulk and weight consists of the eggs contained in her body. If one queen is 10 per cent heavier than another, is it not reasonable to believe that the difference is mostly in eggs, and that the larger queen will be the more prolific layer? Yet I have in mind a queen that I think was the most prolific queen I ever had, and she was remarkable for her small size, perhaps the smallest laying queen I ever had. (I also remember a similar occurrence.—C. P. D.)

As to form, the difficulty would be less. We would probably agree that a trim-built queen with a tapering abdomen is to be preferred to one that is clumsy-looking and bunty. And right at this point, while noting whether the queen were clumsy-looking, we would note whether she were clumsy-acting by seeing how she moves upon the comb, whether in a sprightly manner, or in a slow and loggy way, as if afraid of falling off the comb. The number of legs might also be considered, yet the loss of a leg would hardly affect her as a breeder.

When we come to the matter of color we are very much at sea. We can tell something from the color of a colony of workers, but there seems to be no direct relation between their color and the color of their mother. She may be quite dark, and yet produce a worker progeny of a bright yellow color.

On the whole, the result of our inspection would seem so meager that we would be likely to fall back on the simple way of judging her value by the amount of honey stored by her worker progeny. Indeed, that's not so very different from the case of the cow. Whether the cow be perfect in all the points of the score card, or whether she fall down badly in some of them, if she produces in the course of the year more butter-fat than any other cow in the world, her valuation would run up into the thousands, and she would be called the champion of the world.

In the same way the queen will be judged by the amount of honey stored by her colony, of course taking into account any circumstances that would have a modifying effect on that amount. For instance, if, early in the season, a frame of brood should be taken from one colony and given to another, and then each should harvest the same number of pounds of honey, the one from which the brood was taken would be counted the better of the two.

The cow is judged by her performance at the milk-pail; the queen by her performance in the supers.

—C. C. M.

(In a foot-note, Dr. Miller asks the management of the Journal to "fight back" if either one of us disagrees with him. We do not see how we can improve on Dr. Miller's suggestions unless it be in recommending to keep out of the score any queen of impure stock, for the reason that, in a hybrid queen, the qualities are probably not fixed so as to insure the reproduction of similar qualities in her daughters. So we would prefer to rear our queens from a pure queen, purely mated, even if there was in the apiary a queen of impure stock whose progeny produced the largest crop.

We would consider as of importance, as well, the gentleness of the bees which the queen produced and their ability to withstand disease. It seems pretty well established that pure Italians resist European foulbrood better than either hybrids or blacks.

But in selecting between queens of the same race or the same degree of purity, we do not see how any one can find a better test than previous results, in honey.—C. P. D.)

### Bees Clustered Outside

Dear Miss Wilson :

Madame: Am writing you to see if you can tell me why the bees cluster on the outside of the hives. Am a beginner and this is my second season, but only my first year to notice every move the bees make. I find that the bees have clustered only on my 3-story colonies and I made 4 nuclei this spring and they do not do this. We have had so much rain this past winter, and then it rained again for a couple of weeks last month. Do you think that the reason for clustering so is because there is very little pollen or honey coming in? My nuclei are doing fine, and upon my last inspection I found they had almost no brood; now why? Do you think our excessive rain has anything to do with this. Am very interested in my bees and am afraid I go in my hives too often. Can you tell me how often I ought to enter my hives in order to prevent them from raising queen-cells. Last year I had such a fight with the bee-moth that I keep a close eye on them, but my colonies are very strong, so am sure there is no danger.

Fairhope, Ala.

Bees probably cluster outside because it is more comfortable there, that is, it is cooler. The more bees there are in a hive the more likely to cluster out, other things being equal. At the close of a hot day you are likely to see a strong colony cluster out after working hard all day. Likely it is a good thing for them; there are more bees there than in the day when many were in the field, and it is too hot in the hive if all stay inside. As it cools off through the night the bees in the cluster will gradually enter the hive, especially if there comes a cold wave, and by morning all will be inside.

From what has been said you will easily see that ventilation has something to do in the case. The less the ventilation the more hanging out. During the hot weather you can hardly have too much ventilation. It is well to have the entrance open the full width of the hive, and anywhere up to 2 inches in depth. Also let the super be shoved forward or backward so as to make a ventilating space of a quarter to half an inch.

If the flow of nectar stops and the weather continues hot, a strong colony may hang out all day, and you can hardly blame them. It would be foolish for them to wear out their wings going to the fields when there is nothing for them, and it would be foolish to stay in the crowded hive when it is cooler outside.

The rain may have had a little to do with it, for during the rain the field bees would be kept home, making it more crowded and hotter.

If you want to keep queen-cells cut out, you don't need to go into the hives oftener than once in 8 or 10 days. But in too many cases the effect of cutting out cells is only temporary, and after a time a swarm may issue only a day or so after you have cut out all cells. It would be a long story to tell how to manage in such cases, but you will find it fully given in Dr. Miller's "Fifty Years Among the Bees."

### Selling Comb Honey

Would you kindly tell me what you would think the best plan for selling comb honey?

Until last year I sold about all produced right at home by the pound, most of it in lots of from 10 pounds up to two cases to a customer, not graded as to weight. But last fall, having more than I could readily dispose of at home, and some nearby grocers wishing to buy it at the same price, sold several cases the same as taking 25c as a selling price per pound. In turn they sold it at an advance of 2 and 3 cents per section; one selling at 2c, the other at 3c. With cases of honey weighing all the way from 18 to 23 pounds per case, taking 25c as a selling price per pound an 18-pound case would retail, sold by the section, at the 3c advance, at $7.72, the same as a 23-pound case that brought $5.75. It does not seem a fair plan to either producer or consumer. If cases are graded as to weight in this State, does each section in a case have to be weighed and marked with the net weight ?

ILLINOIS.

The federal law obliging you to mark on each section a minimum weight does not apply in your case, as your honey is not shipped out of the State.

Since there is a good deal of difference in the weight of different sections of honey, the fairest way is to weigh each section and sell it by its weight. You may not want to go to that much trouble, but still you need not sell all sections at the same price. It is a comparatively easy thing to divide your sections into two classes by weight. You might, for instance, adopt 12 ounces as your standard. Set your scales at 12 ounces, and you can rapidly set one section after another on the scales. If the section pulls the scales down it belongs in the heavy-weight class; if it stays up it is a lightweight. You might divide still further by weighing again all your heavy-weights with the scales set at 13 or 13½ ounces. Then you could sell by the section, having the same price per section for all sections in the same class.

From what you say it sounds as if you sold to the grocer at the same price as you sold to the private customer. That is hardly fair to the grocer. He is entitled to his margin of profit to pay him for the trouble of handling the goods, and whatever the price at which he sells, you should not undersell him. If you cannot sell all your honey directly to the consumer, and find it advisable to sell part or all through grocers, then let them distinctly understand that in no case will you undersell them.

## DR. MILLER'S ANSWERS

**Send Questions either to the office of the American Bee Journal or direct to**
DR. C. C. MILLER, MARENGO, ILL.
**He does NOT answer bee-keeping questions by mail.**

### Queenless Robbers

Did you ever know of a stand of bees to rob, who were queenless? I found one of my stands overflowing with bees in March and went to them in April to get a frame of brood, and they had no brood at all, but were robbing another stand. I gave them fresh brood, but they simply hatched the brood and filled the cells with honey. They had a hive full of honey, mostly all unsealed; *no queen*, and no signs that they had had any since last fall; but lots of bees of all ages, but no drones, and not a cell of brood of any kind appeared. I gave the second frame of brood the last of April and on May 1 the hive had bees of all ages, inside the hive and out. They refused to start a queen-cell, although they were constantly running over the front of the hive, looking for their queen. I failed to find any signs of queen, and about the middle of May I divided them. They were in a hive three stories high, 8 frames to each story, making 24 frames in all, the whole year around, summer and winter. My bees are always heavy with fully 90 to 100 pounds for winter. I gave them each 4 frames of brood and now have 2 good, strong stands full of brood. It is my first experience with a queenless robber stand, and they were surely holding their own. They got two of my stands and I saw one of the stands move over

to them. They must have taken several from some other yard, as they were strong in bees all the time.
C. B. PALMER.

ANSWER. No, I never had a queenless colony that I knew to be robbing other colonies. But I have had queenless colonies—weak at that—that stored well for the number of bees. As a rule a colony that has been queenless for some time is weak and not very aggressive. In the present case the colony was strong and apparently eager to gather. If it found it could make a short cut by taking from another colony honey already stored, why should it not rob as well as a queenright colony? It was fiercely possessed with the desire to store, and this desire was so strong that it overpowered the desire to have a queen. This last happens only too often. But queenless robbers are not common, and you may never see them again.

### Room for Winter

1. Is there room enough in a ten-frame hive for a strong colony for winter if all supers are taken off?

2. At what latest time should supers be taken off to bring bees to the cellar?
WISCONSIN.

ANSWERS.—1. Yes, in winter there is plenty of room, even if more room would be better in summer.

2. Supers might be taken off a few days before the hives are cellared, or even the day before; but most prefer to take them off as soon as bees stop work on the fall flow.

### Two Queens in One Hive

1. Will two queens winter safely in one hive with the old queen above an excluder and the young queen below?

2. Would they do better on separate stands?

3. Some people say bees can't build comb very late in the season; is it true?
FLORIDA.

ANSWERS.—1. They may, but one is likely to turn up missing before the winter is over.

2. Yes; yet if both are very weak they may both die separately, while they might live if separated only by an excluder, even if one queen should be lost.

3. They do very little comb-building late in the season, because comb-building is generally needed little then, but they *can* build comb whenever it is needed, no matter how late.

### Fertile Eggs

1. I have a theory that a queen can't lay a fertilized egg unless the walls of the cell gently press the sides of the abdomen. This would account for a fertilized egg in a worker-cell and an unfertilized one in a drone-cell, but have not seen the theory advanced by anyone else. Am I correct?

2. When taking a frame of brood from another hive to be put in a hive when hiving a swarm, should one leave on the adhering bees, or brush them off?
PENNSYLVANIA.

ANSWERS.—1. This theory was held by some more than half a century ago. Others claimed it was the will of the queen that decided the matter. The latter said the former were wrong, because a queen would lay a worker-egg in a worker-cell barely begun. But in this case the cramped position of the queen in bending over might be just as effective as the smaller cell, and I have never seen any satisfactory proof that your theory is wrong.

2. I doubt if it makes any difference.

### Improving Stock

I have built up my apiary so fast and devoted so much energy to number of colonies that I have very much neglected quality in stock. I have three colonies that are about all one could wish, good, light colored goldens, even in color, as gentle as one could wish and apparently no faults; none of the three ever built cells or attempted to swarm.

Now a few questions:

1. Is there any common mistake or fault one is likely to make in breeding from the best queen?

2. Is there anything likely to develop in her daughter queens that it would not be advisable to rear a lot of her virgins and head her colonies with them?

3. Again, if I get a lot of her daughter queens reared and mated in my yard and they prove very satisfactory, then should I rear future queens out of those daughters of hers, or out of her own eggs, in case I still breed her?

In addition to answering these three questions, would you please criticize and comment on this plan of choosing a queen to breed from, and on the proper method of trying out and breeding up from her stock?

I have your book "40 Years Among the Bees," also Doolittle and Pellett's book on queen-rearing, and latest edition of Root's A. B C.
LOUISIANA.

ANSWERS. 1. I do not think of any common fault you are likely to fall into unless it be in not becoming familiar enough with the literature you have upon queen-rearing. You have a splendid set of books upon that subject, and should read over and over what is said in them about queen-rearing. Too many own books without owning the ideas contained in them. I might also mention as a common mistake the practice of rearing cells with too small a force of bees. Up to the time a queen-cell is sealed it should always be in a *strong* colony. It is penny-wise and pound-foolish to have cells built in a nucleus, or even in a colony of medium strength.

2. I think not.

3. Better continue to breed from the old queen as long as she lives, unless one of her daughters proves better than the old queen.

In the Journal for July, page 244, the article "Selecting a Breeding Queen," should be of special interest to you. Please study it well. It will be followed later by the plan that is followed "in this locality" for deciding which queen to choose to breed from.

### Queen Rearing

Will you give me your best plan for raising queens for my own use? State page in "50 Years Among the Bees," and if since the book was published you have found something better, please let me know what it is.
IOWA.

ANSWER.—In "Fifty Years Among the Bees" 1915 edition, if you will turn to page 218 and read the next 26 pages, you will get the best I know about rearing queens, and I have learned nothing better since.

But I imagine I hear you reply: "I don't want the labor of going through 26 pages; can't you tell me just where I can find on one page just what I need?" If you care enough about rearing good queens, I think it will pay you well to become familiar with those pages. Still, if you insist on getting in the smallest compass what will meet your case, turn to page 241. No; you needn't take that trouble. I'll copy it for you here: "Take from the colony having your best queen one of its frames, and put in the center of the hive a frame half filled, or entirely filled, with foundation. If small starters are used in a full colony the bees are likely to fill out with drone-comb. A week later take out this comb, and trim away the edge that hasn't any eggs. Put this prepared frame in the center of any strong colony after taking away its queen and one of its frames. Ten days later cut out the cells, to be used wherever desired, giving the colony its queen or some other queen."

### Requeening

1. In "Fifty Years Among the Bees," talking of placing a nucleus with laying queen in the stand of a queenless colony, you say it never fails in your part of the country. From this I rather gather that there must be a catch somewhere, and would like to know if this will work; make my colony of blacks queenless, and 2 or 3 days later take that hive off its stand and place a queenright nucleus in its place. I would use the brood to form new nuclei, and would hope that the field force would accept the new queen.

2. Doubting that a colony was queenless, owing to a virgin queen not laying, and not to be found, a new queen (black) was introduced, because she happened to be on hand, just run in over the top bars and seemed accepted. There was a pile of her bees dead in front next day, and eggs shortly after that, but as the bees are of the Italian color, and the queen seems very yellow, would like to know if that pile of dead bees was proof that she was not accepted, though her body was not found, and that the queen originally given started to lay.

3. Having several colonies of black bees, and being determined to see the last of them this season, woud like to know if the following is practical and if the result would be good. I put a ten-frame hive with say 5 frames and a laying queen and a frame or two of brood on the stand of the blacks, and the original black colony alongside *without destroying* the queen, taking the old hive completely away in a few days? I suggest this because I am a side-liner, and grudge the time and stings it takes to find black queens, whereas, if I can leave the whole field force with the new queen, the old one will be easier to find, and when found the whole old brood-chamber can go above to make an extracting super, for there should be no queen-cells started.
ARGENTINA.

ANSWERS. 1. I should expect success generally. Something, however, would depend on the strength of the nucleus. The stronger the nucleus the greater the certainty of success.

2. If I understand correctly, an Italian virgin was introduced first, and afterward a laying black queen. The fact that bees and queen are yellow is proof enough that the laying black queen was put out of the way, even though accepted at the first, but I would hardly think the pile of dead bees proof in favor of one or the other, only that there had been two parties among the bees, one party adherents of one queen, and the other adherents of the other, and that there had been a battle between the two parties. In a good many cases where a queen was introduced I have noticed dead bees in front of the hive, indicating that a battle had occurred, although there had been only one queen in the case. Evidently some of the bees were hostile to the new queen, and her friends had massacred the insurgents.

3. There would probably be so few bees with the new queen as to make her situation rather critical. Let me suggest a modification of your plan. Remove the hive from its stand and in its place put a hive with a frame of brood. Set on top of this the old hive, with no communication between them. In a day or two all the field bees will be in the lower hive, giving you your chance to find the queen in the depleted hive above. This hive above will now be in fine condition to receive a new queen, since it will have mostly young bees. After the new queen has become established in her new quarters, perhaps in two or three days, take away the lower hive and set the upper hive down on the stand. The queen will have a strong force to protect her, and will be safe from attack by the entering fielders.

### Foulbrood

1. Does foulbrood spread through a swarm that has some contaminated honey in it, or are the bacteria confined to the affected honey the bees have robbed?

2. Do bees bring honey from the hive-body to the supers above during honey-flow, and are bees apt to take honey from the supers above to feed the brood when they have plenty of honey below?

3. Is it sufficient to shake your bees directly from the diseased hive to the new, clean one?
WYOMING.

ANSWERS.—1. Yes, if there is a single contaminated cell of brood, it will spread throughout the hive.

2. They take honey from the brood-chamber, but in a flow they do not carry it down. When the flow is over they are likely to carry it down as fast as vacancies occur in the brood-chamber.

3. Yes; only you had better brush instead of shake.

## Equipment

1. Are the protection or double-walled hives satisfactory, and what size frame is best?
2. How large a bee-space should a honey-board have, .163 inch perforations, or .172 inch?
3. What bees are the best?
4. Is bee-bread any good?
5. Are the aluminum honeycomb frames satisfactory? Would you advise me to get them altogether?
6. Are the wiring, nailing and wedge clamping devices advertised all right?
7. What is the best device for putting together sections, in starters, etc., at one handling.

IOWA.

Answers.—1. Opinions differ, and localities differ. Most Iowa beekeepers prefer single-walled hives wintered in cellar.

2. Likely .163 is better.

3. Three-banded Italians are generally preferred.

4. It is often of more value than honey. No young bees can be reared without it.

5. They are as yet new, and largely untried.

6. Likely they are, although all may not be of equal value. I must confess ignorance, in that I have not tried all of them.

7. I don't know. Some think it better to have two machines, one to put the sections together and one to put in the foundation.

## Foulbrood

In treating foulbrood nearly all writers say to put the bees on foundation starters until they have cleaned themselve of infected honey and wax and then give them full sheets to begin over with. Please tell me why it would not do as well to cut out all brood and honey from infected frames of combs, just leaving enough dry comb at the top to show them where to start, instead of furnishing new frames with starters to be destroyed as soon as used?

KENTUCKY.

Answer.—Instead of brushing twice, as you mention, isn't it the general practice nowadays to do the one brushing upon full sheets? One objection to your plan is that it would be inconvenient. You would hardly want to cut out combs in less than three weeks after treatment, for you want the brood to hatch out. Also, to leave a margin of dry comb would be just what you don't want, for you don't want the bees to have a place to deposit the infected honey, but you want them to use it up before there is brood to be fed.

## Extracting—Bees Loafing

1. I am just a beginner in this busy bee business and would like to know how honey is extracted, where only one or two stands of bees are kept and no extractor in the neighborhood.

2. I have a 10-frame hive with super in a well-shaded place and for three weeks or more a large number of bees cluster on the outside of the hive, and sometimes hang in bunches the size of a baseball under hive-stand in the hottest part of the day. Sweet clover is in full bloom and the worker bees seem to be just as busy when this occurs as at any other time, but have difficulty in entering hive with so many bees crowding the entrance.

UTAH.

Answers.—1. Without an extractor there is no way to get the honey and save the comb. You can crush the comb and strain out the honey through a cloth, or you can melt the combs, let cool, and then take the cake of wax off the top, but neither of these ways is very satisfactory.

2. It is nothing very unusual for bees to hang out in this way, and when it occurs at a time when there is plenty of bee-forage in the fields, it is generally due to the heat and too little ventilation. Give plenty of shade and ventilation; you can hardly overdo the matter. (Possibly they need more super room.—Ed.)

## Wintering Equipment, Etc.

1. Which is the best way to winter bees, indoors or outdoors?
2. Is Michigan a good state for beekeeping, and which part is the best?
3. Which is the best packing when you winter bees outdoors?
4. Does it pay better to feed bees honey, or syrup, in spring?
5. How do the Dadants winter their bees?
6. What is the average of pounds in Texas of honey secured as a surplus? in Michigan?
7. Should bees have shade or not?
8. Where can one secure a 20-frame hive?
9. One of the most successful beekeepers of the United States told me that Texas was the best State for beekeeping; do you agree? I think the temperature is unbearable down there, and unhealthy, so I would not like it much there.
10. Is the Dadant hive a better hive than the Langstroth, and how many frames has it?

ILLINOIS.

Answers.—1. North of parallel 40 or 41 bees are generally cellared, although some prefer outdoor wintering; south of that they are wintered outside.

2. Michigan is good, especially north, where fireweed and wild raspberry abound.

3. It is largely a question of what is convenient for you. Chaff is good, also leaves, and planer shavings.

4. Honey; it contains elements necessary for the welfare of bees that are not at all found in sugar.

5. Outdoors.

6. I don't know.

7. Better in general to have shade.

8. I suppose they can be made to order at any hive factory.

9. For those who live there and like Texas best, it is probably the best State. Like enough Illinois is better for you.

10. The Dadants and others who use it like the Dadant better, and like enough some others who do not use it would also like it better if they should try it.

## Shaking

1. In the American Bee Journal for April, 1917, page 135, in answer to "Pennsylvania," paragraph 3, you say: "However, it will be all right if you leave at least one frame without shaking, provided it contains one or more good cells." Do you mean by that that the bees will rear a good queen if they are not shaken, which I never do, until the cells they have started are well advanced or nearly ready to seal, or would it be better to take away the queen and two frames of brood as advised? I want to raise the best queens possible, but have a hard time finding the queen, and want to avoid that trouble if possible. How would it do to leave three or four frames unshaken, including the one with the cells, set the hives close together at the old location and within a week shake or brush again and put the hive with the sealed cells on a new stand?

2. The first lot of honey I took off the hives this year has, when the combs are held in front of a strong light, a deep orange or reddish color, and the honey seems to be rather thin, and to me it hasn't the flavor of other years, although people to whom I have given some thought it was good. I have not, however, so far noticed any peculiar smell about it. Do you think there is honeydew mixed with it? If there is, is it fit to eat? Would it be all right to feed to the bees next spring, if they need it? Other years my honey was always of a very pale yellow color when held to the light, and people here and at Philadelphia always told me that it was of extra fine flavor. The honey that is ready to take off now looks much better.

PENNSYLVANIA.

Answers.—1. In the sentence quoted the point made was that it would not do to shake queen-cells, as that would spoil them, but to avoid shaking, the bees must be brushed from the combs, or at least one frame containing one or more cells should be brushed and not shaken. So I hardly meant just what you say. Still it is true that if you wait till the cells be about ready to seal, and then brush (not shake) you ought to secure good queens. The only object of removing the queen in the instructions given was to get cells started, and if the cells are already started there is no need to remove the queen. If I understand your present proposal, it is to divide the colony into two hives, cells being in each hive, and then a week later move to a new stand the queenless hive, leaving on the old stand the queen and most of the bees, and on the new stand all or nearly all the brood with bees enough to protect the brood, no cells being left with the queen. That will be all right, only that in some cases there might be danger of the queen swarming before the second taking of brood from her.

2. It looks as if the specially colored honey was from some particular plant rather than from a mixture of honeydew. However, even if there is honeydew in it, it will be all right for the table for anyone who likes it, and it will be all right to feed next spring, although honeydew is not good for winter stores.

## Division—Packing

1. Our bee forage through the season is first the willows, soft maples, fruit bloom, alfalfa, yellow and white sweet clover, basswood, sumac, heartsease or smartweed, besides other flowers. Now I want to divide my colonies. Frost comes about the 10th or 15th of September, here in Nebraska. Would it not be better to divide about the 10th or 15th of August.

2. Now, about packing for winter. I intend to leave them on their stands. I thought of taking tar paper and wrapping it around the hives, driving a stake at each corner, to leave a space of about 4 or 5 inches and packing with dry leaves or fine straw, putting a super on top with leaves in it with cover on top and bring the paper up to the cover and tacking it to keep the water out.

3. Would it do any harm to give them all the sugar syrup they will take?

4. Would you winter them in 2 hives or just brood-nest, with a packed super on top?

NEBRASKA.

Answers.—1. That is likely to work well if you save up frames of sealed honey from that gathered earlier, so as to give to any colonies that do not gather enough after the division.

2. That ought to work.

3. You are not likely to have the brood-chamber too full of stores unless it be so full next spring that the queen hasn't room to lay in; only remember that sugar is not as good as good honey. (It is better winter feed for bees outside.—F. C. P.)

4. If you mean two stories without the packed super on top, I should prefer the one-story with packed super; but would a little rather have the two stories with packed super.

## Metal Covers—Honey Plants

1. Which would you prefer, a wood or metal cover for a hive? Would not the metal cover have a tendency to heat and smother the bees and melt the honey more than the wood if hive is exposed to sun?
2. Could not alfalfa be used for hay and at the same time for a honey plant?
3. Describe buckwheat as a honey-plant; time it should be sowed, etc.

MISSOURI.

Answers.—1. Metal; that is, a wooden cover covered with zinc or tin. I have such covers that have an air space between two layers of thin boards, and I think there is less trouble from the heat with them than with covers all wood.

2. I don't know that there's any place where at least part of the alfalfa is not used for hay. But there will generally be some

bloom before it is cut for hay, and some will be allowed to bloom for seed.

3. Buckwheat is one of the best honey-plants, yielding one of the darkest honies, liked more than the lighter honies by some, and disliked by others. In some places it fails to yield in some years, and in all places generally yields nothing in the afternoon. For full information see the books, or send to U. S. Department of Agriculture, Washington, D. C., for bulletin on buckwheat. (Buckwheat yields but little honey in Missouri.—F. C. P.)

# MISCELLANEOUS NEWS ITEMS

## Behavior of Queen

In long and continued observations of colonies in observation hives. I have repeatedly observed an action on the part of the queen which I am beginning to believe may cause swarming at times when it is not easily explained. You know bees sometimes swarm out and leave brood behind, shortly after hiving, or at times swarm with queen-cells only started. This has always been puzzling.

Observation of a queen here in a weak one-frame nucleus shows her repeatedly searching for empty cells, which in her case, are only found **outside** her small cluster. She wanders off, usually alone, poking her head into these cells, but **not** laying. Frequently I have seen her go too near the entrance. In doing so she flutters her wings, probably making some sound which I cannot hear, but which **immediately arouses the entire cluster so that many of them rush toward her.** Once I saw some of the bees **rush outside the entrance** while others headed her off and actually seemed to push her back, with their antennae, toward the cluster.

Might not such wanderings on the part of a queen be the cause of some of our inexplicable swarming under abnormal conditions? I believe it is, when she wanders too close to the entrance and may be seized with a desire to try a flight. Anyway, I give you the observation for what it may be worth.

KENNITH HAWKINS.

### St. Louis Beemen Organize

St. Louis, Mo., May 23.—A group of local beekeepers recently met and formed what will probably be known as the Mound City Bee Club. The purposes of the organization will be:

To learn to keep bees better.

To co-operate with inspectors in preventing and curing disease, and to protect, if possible, members from purchasing bees which are known to be affected.

To diplomatically discourage "nail keg" beekeeping as a menace to the industry.

To join with other honey producers of the State in a united effort to bring about more beneficial legislation at Jefferson City.

To secure expert instruction at meetings, and, if possible, representation at conventions.

To pool their wits and efforts in solving problems which could not easily be overcome individually.

To collectively stimulate honey consumption by the distribution of proper literature and judicious advertising.

To endeavor to standardize packages—at least locally.

To learn to calculate production costs.

To collectively purchase supplies.

And last, but not least, to enable the enthusiasts to meet and "get it out of their system,' 'and be thereby no longer a bore to their long-suffering friends who don't care a rap about bees.

All interested local apiarists who would like to help swell the crowd at the next meeting are invited to communicate with the undersigned.

A. G. VAN RONZELEN,
223 Dover St.

### Honey Granulation—Bees in Pound

Replying to enquiry of "Ontario," page 254, June issue, relative to granulation of honey; here my experience and observation show that the more thoroughly the honey is ripened (regardless of the source) the finer the grain and more compact the texture, even to almost the smoothness of the choicest and purest of lard.

In reply to your comments, page 206, same issue, relative to the number of bees contained in a pound and the amount of nectar, by weight, that they carry, will say, the whole situation is guesswork, and my estimate was based upon actual weight of empty bees and bees loaded during a good honey flow, and not the halfway situation in either instance, and to my mind the only way to know positively and accurately would be to weigh at least one-fourth pound of bees that had actually starved and another one-fourth pound of those known to be loaded, honey-sacs full of nectar, and when this is done you will find that my estimate is the more nearly correct.

ELIAS FOX.

### Increased Appropriations

Several States have appropriated liberal sums for beekeeping work at the recent sessions of the legislature. Among the latest reports is that from the State of Connecticut, where the money available for bee inspection has been increased from $1,500 to $4,000. A law also was enacted requiring all beekeepers to register with the town clerk. If the provisions of this law are generally complied with it will enable inspectors to locate all the bees in the territory where they are at work.

### Don't Like the Italians

I would like to see a discussion of the different breeds of bees. I think that the Carniolans and Caucasians are the best honey gatherers. I have no use for the Italians. They may be all right for extracted honey.

WINSOR W. LANTIS,
Perry, Mich.

(The above letter is a reminder that the Italians have had far more publicity than other races. Let us hear from the beekeepers who have given other races a fair trial.—Ed.)

## NEWS DISPATCHES

### Bees Sting Horses

Vincennes, Ind.—A swarm of bees which settled under a team hitched to a disc on the John Wampler farm frightened the horses and caused them to run away. The farmhand on the disc was thrown off and dragged a considerable distance. One of the horses struck its leg against one of the sharp discs, severing it. The animal was killed.—Indianapolis Times.

### Stray Swarms Hived By Firemen

Yakima, Wash.—A recent newspaper report of the capture by Yakima firemen of a swarm of bees in a tree near the fire station has been followed by a number of telephone calls from all parts of the city asking the firemen to "come and get a swarm of bees just outside my house." As a result, the firemen have collected an apiary of nine stray swarms, which are hived near the fire station and apparently are contented, and thriving.—Seattle Post Intelligencer.

### Bees Used in Battle

Probably the most remarkable weapons of war ever used were swarms of bees. There are at least two well-authenticated instances of the use of this novel and stinging war material.

The first is related by Appian, of the siege of Themiscyra, in Pontius, by Lucullus, in his war against Mithridates. Turrets were brought up, mounds were built and huge mines were made by the Romans. The people of Themiseyra dug open these mines from above, and through the holes cast down upon the workmen bears and other wild animals, together with swarms of bees.

The second instance occurred in Enilant. The Danes and Norwegians were attacking Chester, held by the Saxons and some Gallic auxiliaries. After adopting stoning and boiling water in vain against the besiegers, the Saxons threw down all the beehives in the town upon the attackers, who were soon routed.—Toronto Evening Telegram.

### Spacing of Combs, Etc.

Would you advise the spacing of combs 1½ inches from center to center? With this additional space wouldn't the bees elongate the cells in the extracting supers? I find with the above spacing a 10-frame hive would require about nine combs. Would nine combs be all right in the brood-chamber when the bees go into winter quarters?

I examined a 2-story hive a few days ago and found a laying queen above and below. How did that queen get into the upper story, with a wood and zinc queen-excluder between the two bodies?

I put the upper story underneath a queenless colony with one thickness of newspaper between them. Should I have used more than one thickness of paper?

Illinois.

You will do well to space 1½ inches. Nine frames in a ten-frame brood-chamber will allow good wintering, and those successful beekeepers, the Dadants, attribute their almost total immunity to swarming mainly to the fact that they have large hives and also wide spacing. In a brood-comb filled with sealed worker-brood, the combs will be of the same thickness, whether they be spaced 1⅜ or 1½. The thickness of such a sealed comb is not far from an inch, leaving a space of about ⅜ inch between two combs where the combs are spaced 1⅜. With 1½ inch spacing the space between two combs is about half an inch. So with the larger spacing there is more room between combs than with the smaller spacing, and this makes the bees less crowded, and it is easy to believe that they will be cooler and less inclined to swarm.

As to wintering, the probability is that there would be no trouble if combs were spaced anywhere up to 2 inches apart. In our cellar in winter it is a pleasant sight to see bees of a strong colony clustered below bottom-bars and filling entirely the 2-inch space between bottom-bars and bottom-board. If a 2-inch cluster is all right under the frames, why not between them, thus making them spaced 3 inches apart from center to center?

One way to account for a queen above the excluder, beside the one below, would be to say that a queen was reared in the upper story, either because brood had been above or because bees carried an egg above.

One thickness of newspaper is enough to use when uniting bees in two different stories.

---

### Bees and Fruit

Spokane, Wash., July 10.—An interesting clash of interests appears to have developed in the fruit-producing district, of which Spokane is the commercial center, as between fruit growers and apiarists.

One side of the subject is set forth in a statement by E. B. Kelly, State Agricultural Inspector, who says:

"Never before has the Inland Empire apple crop showed up the need of bees in this district as it has this year. Many apples will be lost this year because of lack of proper pollenization, and although the loss does not compare with the frost damage, it is very noticeable. There are a few bees in the Inland Empire, but the majority of fruit growers depend too much upon their neighbors' bees for charity work and sooner or later the live producer will see the need of having a good stock of bees on his own farm.

"If bees are introduced into the Inland Empire on a large scale, the farmers will first have to provide better means of feeding. Food secured by the bees during the fruit season will not be enough for their winter supply and every corner and nook will have to be sown in clover."

Quite another aspect is presented in a dispatch from Prosser, Wash., as follows: "Startling mortality among bees indicates an unusual shortage of honey in the Yakima Valley for the present season. Tons of honey were shipped from this locality last year and brought fancy prices. W. H. Tucker, who had over 200 stands of bees, which yielded him an income from $25 to $54 a stand last year, reports that he will have no honey for sale this year.

"He states that the unusual value of the apple crop has caused orchardists to continue spraying much later than heretofore and in much heavier quantity. The chemicals in the spray fluids is killing the bees by the million. Mr. Tucker started this season with 250 stands, 50 of which have been entirely wiped out, and no more than 10 to 20 per cent of the inmates of the remaining stands still survive."

The subject will be debated at fruit growers' conventions this fall. There seems to be a strong conflict of opinion as to whether the spray used to combat coddling moth is fatal to bees.

---

### Louisiana Meeting

J. F. Archdekin, Big Bend, was named President of the Louisiana State Beekeepers' Association at Baton Rouge, Friday, August 8, when the first meeting of the kind ever held in the State was called as part of the Tenth Farmers' Short Course. E. C. Davis, Federal Extension Agent for Louisiana, who was named Secretary, was instrumental in the calling of the meeting. Other officers are: Geo. H. Sexton, Atchafalaya, Vice President; R. L. McCoy, New Roads, Second Vice President, and F. M. Morgan, Hamburg, Treasurer. Thirty-seven charter members joined, and Mr. Davis expects the list to swell to 100 before January 1. Talks at the meeting were given by J. F. Archdekin, F. M. Morgan, Geo. Sexton, C. J. Free, R. L. McCoy and Rev. G. P. White. Louisiana is not overcrowded in beekeeping, and this new organization presages a great future development. K. H.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

### BEES AND QUEENS

FOR SALE—Golden Italian queens, untested 85c, two $1.50.
J. F. Michael, Winchester, Ind.

QUEENS AND BEES—This fall is proper time to replace all queens 2 years old, as well as the failing ones. Circular free. See large add elsewhere.
Nueces County Apiaries,
E. B. Ault, Prop., Calallen, Texas.

FOR SALE—Italian queens, from best disease-resisting stock, mailed as soon as hatched. Directions for introducing with every order. Price, April to October, in large or small lots, 60c each. James McKee, Riverside, Calif.

FOR SALE—100 colonies of bees, mostly Italians. In 10-frame dovetailed hives, wired frames; no disease. Also 100 supers. Bees in fine condition.
Garrett H. Creech, Central City, Neb.

FOR SALE—Fine Italian queen bees (free from disease). each $1, $10 per doz
Jul. Buegeler, New Ulm. Texas.

FOR SALE—Tested 3-banded Italian queens, $2; safe arrival and satisfaction guaranteed.
Clinton Bradway, Monson, Mass.

I SHALL have 10 or 12 colonies of bees for sale as soon as honey gathering is over. These are in 10-frame hives with Hoffman wired frames, filled with full sheets Dadant's foundation. Other particulars and prices on application. Edwin Bevins, Leon. Iowa.

REQUEEN—Three-banded Italian queens for fall requeening now ready. Untested, $1 each; select untested, $1.25. Safe arrival and satisfaction guaranteed.
H. A. McCarley, Mathis, Tex.

FOR SALE—Leather colored Italian queens, tested, June 1, $1.50; untested, $1.25; $13 a dozen. A. W. Yates,
15 Chapman St., Hartford, Conn.

ITALIAN QUEENS—Northern bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price $1 each.
J. H. Haughey, Berrien Springs, Mich.

THREE-BANDED ITALIANS ONLY — Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. H. G. Dunn,
The Willows, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2. C. W. Phelps & Son,
8 Wilcox St., Binghamton, N. Y.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75. Garden City Apiaries,
San Jose, Calif.

FOR SALE—3-band Italian queens ready June 1. Untested, each $1; twelve, $10; 100, $80. No disease here and satisfaction guaranteed. A. E. Crandalt & Son,
Berlin, Conn.

LEATHER and all dark colored Italian queens, when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock. C. W Phelps & Son,
No. 3 Wilcox St. Binghamton, N. Y.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 84 Cortland St., New York City.

SWARTS GOLDEN QUEENS produce golden bees of the highest quality; satisfaction guaranteed. Mated, $1, 6 for $5; tested, $2.
D L Swarts, Lancaster, O., Rt. 2.

FOR SALE—Hardy Italian queens, 1, $1; 10, $8. W. G. Lauver, Middletown, Pa., R. 3.

FOR SALE—Three-banded Italian queens; untested queen $1, six, $5.50; twelve, $10. Tested queens $2 each.
Robert B. Spicer, Wharton, N. J.

EDSON APIARIES increased queen rearing facilities will insure the prompt delivery of A1 laying Italian queens, leather colored or golden. Prices reasonable Address
Edson Apiaries, West Butte, Cal.

FOR SALE—Golden queens second to none, for honey gathering and gentleness are unsurpassed; untested $2, tested $5 to $10.
E. V. Marston, Roxbury, Va.

FOR SALE—J. B Brockwell's golden queens, untested $12 per doz., $7 for 6, $1.50 each; 3-frame nuclei $8, with queen. Tested queens $3 each. J. B. Brockwell, Barnetts, Va.

QUEENS, QUEENS—We are now up with orders; are mailing queens day after receipt of rush orders. No disease; satisfaction guaranteed. Best Italian untested queens 1 for $1, 12 for $11.50, 50 or more 90c each. I will care for your interests.
W. E. Achord, Pike Road, Ala.

FOR SALE—20 colonies bees, mostly Italians. A. C. Gould, Weston, West Va., Route 4.

WARRANTED QUEENS—Dr. Miller's strain. $1 each, $10 per doz.; tested $1.50 each, $15 per doz. Safe arrival and satisfaction guaranteed. Geo. A. Hummer & Sons.,
Prairie Point, Miss.

"SHE SUITS ME" Italian queens, $1.15 each, from May 15 to October 15; 10 or more, $1 each. Allen Latham, Norwichtown, Conn.

FOR SALE—One hundred stands of bees in 8 and 10-frame hives, wired frames; bees healthy. Write for prices and particulars.
Duane Shaw, Palestine, Ill.

WANTED—Second-hand honey extractor; state make, condition and price.
J. Stevenson, Richmond S. I., N. Y.

FOR SALE—Baby swarms, three frames and queen, $5. J. A. Dougherty,
Box 66, California, Hamilton Co., Ohio.

FOR SALE—Italian bees and queens (the kind that fill from 2 to 6 supers). Bees, $12 a colony; queens, $2 each, 6 for $11. Queens go by mail, bees by express. Order direct from this ad. Miss Lulu Goodwin,
Mankato, Minn.

FINEST THREE-BANDED Italian queens for $1.25, 6 for $7. J. W. Romberg, Apiarist,
3113 Locust St., St. Joseph, Mo.

## HONEY AND BEESWAX

WE BUY HONEY AND BEESWAX—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section and sections to a case. Extracted honey, quantity, quality, how packed, and send samples. Chas. Israel Bros. Co.,
486 Canal St., New York, N. Y.

FOR SALE—New clover honey in new 60-lb. cans, 2 cans to case; also buckwheat honey in kegs and cans. Write for prices; sample 15c.
E. L. Lane, Trumansburg, N. Y.

FOR SALE—5,000 pounds clover extracted honey, new crop, two 60-lb. cans to case, 25c per pound. J. P. Goodwin.
South Sioux City, Neb.

FOR SALE Clover extracted honey of finest quality, in new 60-lb. cans, two to the case, at $24 a case. Order from this ad.
Martin Carsmoe, Ruthven Iowa

HONEY Pure extracted clover and basswood, choicest quality; one 60-lb can, $13.50, two cans in case $26. Sample 10c
The Riverview Apiary,
Ed. B. Klimaschesky, Mahnomen, Minn.

WANTED—Clover honey, comb and extracted. Buckwheat considered if price is right. State lowest cash price at your station. Sample will be requested if price suits.
The Forest Honey Co.
2323 S. Woodstock St., Philadelphia, Pa.

FOR SALE—6,000 lbs. of honey, mesquite blend; well cured, in new 60-lb. cans; two cans to case. Subject to best cash offer, F. O. B. here.
Chas. Heim & Sons, Three Rivers, Tex.

WANTED—Honey, in light and amber grades. Send sample, stating quantity, how put up, and lowest cash price delivered in Spring Valley. Ed. Swenson, Spring Valley, Minn.

FOR SALE—15,000 pounds of fine clover and basswood honey. The best offer takes it if satisfactory. Chester E. Keister, Clarno, Wis.

FOR SALE—New crop clover extracted honey, two 60-pound cans to case, 25c per pound.
H. G. Quirin, Bellevue, Ohio.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St. Chicago, Ill.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

## FOR SALE

FOR SALE—My 5-acre piece of land, with modern 8-room house, good barn, chicken coop, bee house and woodshed; all in good condition. Reason for selling, going on a farm. Address Theo. L. Thompson,
Spring Valley, Wis., Rt. 4, Box 7a.

FOR SALE—Blue vine seed, or climbing milkweed (*Genolubus Laevis*), 6 pods containing innumerable seed mailed to any address upon receipt of $1.
S. H. Burton, Washington, Ind.

FOR SALE—Or Trade for Honey—Used 5-gal. cans, bright; case of 2, $1; not so sightly, but bright inside, case of two, 80c; no leakers. E. H. Bruner,
3836 N. Kostner Ave., Chicago, Ill.

FOR SALE—Or will exchange for bees—One 240-egg Old Trusty Incubator, in fine shape, price $20 One 38-55 Winchester rifle, in good shape, $12. Jas. D. Webb, Hazelhurst, Wis.

BLACK SIBERIAN HARE—World's greatest rabbit for fur and meat. Write for information.
Siberian Fur Farm, Hamilton, Canada.

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you. The Deroy Taylor Co.,
Newark, N. Y.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, $1. American Bee Journal,
Hamilton, Ill.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—8 acres land, 300 colonies bees; land in high state of cultivation, growing second crop now; price per acre, $200. Apiary in three yards; production highest average in 10 years, 96 lbs. extracted honey, lowest 23 lbs, per colony. S. Mason, Hatch, N. M.

FOR SALE OR TRADE—Model 10 Royal standard typewriter, visible; like new; cash $50. Cost $100. E. A. Harris, Albany, Ala.

FOR SALE $4,800, 183 acres two miles from Pleasant Lake, N. Dak.; 100 acres of it in wheat. The crop goes with the farm, if sold promptly. Near the main line of the G. N. R. R. Address.
"R," American Bee Journal Office,
Hamilton, Ill.

## WANTED

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—I have a fine location in California and want a man to associate himself with me in the beekeeping business. I have the stock of bees and equipment here in Arizona; wish to ship all to a certain point in California this fall; have an attractive proposition to offer the right man that can invest in half interest in what I have. Tell your story in first letter.
J. B. Douglas, Box 1085, Tucson, Ariz.

## SUPPLIES

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati; terms cash with order. C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

MY FEEDER Make 'em yourself. I tell you how. Won't rust. Sample and tool postpaid, 24c. Dr. Bonney, Buck Grove, Ia.

FOR SALE—Beehives and supers. Address
Thos. Cordner, Rt. 7, Sparta, Wis.

SPECIAL—Best No. 1 Sections, per crate of 500, $3.50; other goods in proportion. Price list free. H. S. Duby & Son, St. Anne, Ill.

## MISCELLANEOUS

E. D. TOWNSEND & SONS, Northstar, Mich., offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice, white, clean extracting combs that had never had a particle of brood hatched from. We had more of those extracting combs than we could possibly use this year and we piled them on the swarms as needed and *not a single ounce of honey was extracted until some time after the close of the white honey flow*, consequently *none* could be produced that will excel this crop of honey. Of course, it is put up in new 60-lb. net tins and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey, but if you can, and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is, and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover or that containing about 5 per cent of basswood, just enough basswood to give it that exquisite flavor relished by so many, at only 25c per lb. on car here at Northstar. Kindly address with remittance, E. D. Townsend & Sons,
Northstar, Mich.

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 35c.

**American Bee Journal Hamilton, Illinois**

## ATTRACTIVE CLOTHES

Do not make the man, but they add greatly to his appearance.

Just so with your honey. It must have quality, but should have a neat package and an attractive label.

We can furnish the label. In many sizes and shapes suitable to fit any container.

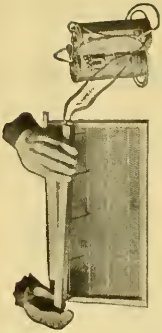
Write for our new price list of honey labels and stationery.

**American Bee Journal, Hamilton, Ills.**

## WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**



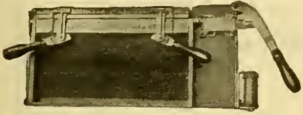
## ELECTRIC IMBEDDER

**Price without Batteries $1.25**

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market.

**For sale by all bee supply dealers**

**Dadant & Sons,** Manufacturers HAMILTON, ILL.



PAT. JULY 30, 1918

## C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

## Queens by Return Mail

Bred from the best three-band Italian stock. Nothing better. Single, $1.25, six for $5.50, twelve for $10.00. Breeders $3.50.

**A. B. MARCHANT**
**DOCTORTOWN, GA.**

## Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading

Send us your order for blank books and let us bind your magazines.

Following are prices of binding magazines:

| | |
|---|---|
| "American Bee Journal," cloth | $1.50 |
| Half leather | $1.75 |
| "Gleanings in Bee Culture," cloth | $1.25 |
| Half leather | $1.50 |

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**

## Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick. Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year**
**United States, $1.25 Foreign, $1.50**
**Send for a free sample copy**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

## TEXAS BRED QUEENS

### THE SUCCESS OF BEEKEEPING DEPENDS ON GOOD YOUNG QUEENS

We will have several thousand for sale this Fall, also booking orders for next year. Send for *Free Circular* giving prices, etc., for Spring delivery. We will guarantee shipments to be made on time; circular explains. September and October is considered the best time for southern beekeepers to requeen.

| | 1 | 6 | 12 | 50 |
|---|---|---|---|---|
| Untested | $1.25 | $6.50 | $11.50 | $40.00 |
| Select Untested | 1.50 | 7.50 | 13.50 | 48.00 |
| Tested | 2.00 | 10.50 | 18.50 | |
| Select Tested | 2.75 | 15.00 | 27.00 | |

**One pound package of bees $2.40—25 or more $2.16 ea.**
**Two pound package of bees 4.25—25 or more 3.83 ea.**
**Three pound package of bees 6.25—25 or more 5.62 ea.**

Prices of regular Nuclei, also Nuclei on ALUMINUM COMBS, given in circular. We have shipped for several seasons thousands of pounds of bees all over the United States and Canada. Add price of Queen when ordering bees.

**NUECES COUNTY APIARIES** E. B. AULT, Prop. Calallen, Texas

## QUEENS QUEENS QUEENS

### GOLDEN AND THREE BANDED QUEENS

The demand for our Famous Disease Resisting, Honey Gathering Hustlers is greater than ever before. Untested, 90c; 50 or more, 75c each. Select untested, $1; 50 or more, 90c each. Tested, $1.75; select tested, $2. Virgins, 40c. All Queens by return mail, or soon.

**BOOK YOUR ORDER NOW**

**M. C. BERRY & COMPANY, Hayneville, Ala.**

**USE IMPROVED METHODS! TEXAS QUEENS ON MONEYCOMBS!**

# You Want to Test the Aluminum Comb
# You Want to Try a Sunny South Queen

Satisfy both Wants by ordering a nucleus now. We furnish nuclei on Aluminum Combs only.

We can therefore guarantee something never guaranteed before:

**SAFE ARRIVAL:** These combs will not break down in transit.
**NO DRONES:** Every comb a perfect brood comb. No drone brood or drone cells possible.

**Prices are no higher than responsible dealers have been charging this year for the old style wax-comb nuclei**

| PRICES OF NUCLEI | |
|---|---|
| 1-Frame Nuclei with Tested Queen | $5.00 |
| 2-Frame Nucleus with Tested Queen | 7.50 |
| 3-Frame Nucleus with Tested Queen | 9.50 |
| 10-Frame Complete Colony with Tested Queen | 18.50 |

| PRICES OF GOLDEN OR 3-BAND QUEENS | March to June | | July to October | |
|---|---|---|---|---|
| | 1 | 12 | 1 | 12 |
| Tested | $3.50 | $36.00 | $3.00 | $30.00 |
| Untested | 2.50 | 24.00 | 2.00 | 20.00 |
| Select | 5.00 | | 4.00 | |

**WE RAISE OUR QUEENS BY THE BRENNER METHOD**

Order nuclei early. We are preparing 3,000 Aluminum Brood Combs for early spring orders. When these are sold no more may be had. Place orders now to insure delivery. State when you want your nuclei shipped. We will return money promptly on oversold orders. **Act at Once.**

**References:** Texas Honey Producers' Association.
G. B. Lewis Company.
Dadant & Sons.
Aluminum Honey Comb Co.
American Bee Journal.

**Send all orders to**

**SUNNY SOUTH APIARIES**

**E. G. LE STOURGEON, Manager**

**San Antonio, Texas**

# Crop and Market Report

Compiled by M G. Dadant

For our September report we asked the following questions of our reporters:

1. What has the yield been?
2. What do you expect in the fall flow?
3. How is honey selling, and what is being offered for the same?
4. Is there tendency to go back to comb honey, owing to the demand for it?
5. Give information on prices and future prospects.

## THE CROP

It is unfortunate that the crop has been as short as our reports would indicate. We would judge that the total crop will fall considerably short of last year, this owing to the fact that there will be a falling off in many of the larger producing areas, as in the inter-mountain States and in California.

The New England States report the crop as only fair, but not near up to last year. Nor is New York up to the average. Prospects are yet favorable, but it is doubtful if the total crop will come up to last season.

In the South, conditions are about up to last year, with some localities reporting less and some more. Kentucky has about two-thirds of a crop, while Alabama is above average. Louisiana is poor, as is Arkansas.

In Texas the crop has about come up to expectations and is generally much better than last year, some claiming 200 per cent more than in 1918. The flow has been interfered with to some extent by excessive rains. The mesquite flow has suffered in this manner. But the crop the State over is very good, and beekeepers are much encouraged. They are beginning now to recoup their losses.

The whole white clover area will have scarcely any crop, though there are spots, such as Wisconsin and western Iowa, where the crop will be good. Illinois will have no clover honey to speak of, nor will the bulk of the white clover producing area.

Michigan will have less than a half crop, while Wisconsin may have more.

Reports vary from the inter-mountain territory, but indications are that the crop will not bulk up to what it was in 1918. Colorado is fair, with Montana, Utah, Wyoming and some other States much below what they expected.

In California all of the reports, with the exception of probably one, indicate that the crop is not much over half of what it was in 1918, and that it cannot be over 60 per cent of normal. Drought has cut in on the bean crop, and indications for future crops are not of the best.

All in all our guess is that the crop for the whole country will not be much over 75 per cent of what it was last season.

## FALL CROP

Very few localities report fall crop prospects, and their bearing on the total is so small as to be neglected. In the Central States, those located near the Spanish needle and other fall flower fields, are hoping that their bees can at least pick up enough to put them in good condition for winter.

## HONEY SALES, ETC.

Honey is probably selling as readily as it ever has at this season of the year, except when the sugar restrictions were in effect. In fact, the shortage of sugar recently and the high prices of fruits to can has probably increased the demand over normal.

Most of the honey moving as yet, in the hands of dealers, is of last year's crop, which in many instances is being sold at a loss so as to clean up the old honey and get ready for the new crop coming in.

## EXTRACTED TO COMB

Very few are thinking of changing back to comb honey, although there is a possible tendency that way. The price of extracted has remained so high, and comb honey prices so low in comparison, that the change back has not been tempting. It may be that the shortage of comb honey will assert itself later on and that its price will advance so as to be an extra inducement for next season.

## PROSPECTS FOR HONEY PRICES

In most instances producers are being offered from 14 to 16 cents for amber honey and from 16 to 18 cents for white, with many sales at these prices. We understand that one of the biggest bottlers of honey is offering and has bought some white honey at a price of 18 cents. Buyers, as a rule, do not seem anxious to offer, and this is not to be wondered at, since most of the big wholesalers and bottlers have stocks on hand from last year which they would be glad to clean up at last year's prices. In fact some of them are selling at a loss. We got one report of 1,200 cases bought at 26 cents last fall being sold for 12 cents this summer. We hardly believe that the loss has been this great in most instances, but we do know of one or two instances in which 25-cent honey has gone begging when offered at 20 cents. Naturally this is going to hold back many advance offers on honey on the part of the fellow who is still holding over some of his 1918 purchases.

We do not believe, however, that the beekeeper need be fearing a slump in the honey prices. This honey will gradually clean up, and we hope that the market will stiffen as fall approaches.

Surprising as it may seem, practically all producers are holding for better prices than are being offered. Nearly all reporters we are in touch with desire prices of at least 18 cents for amber and 20 cents for white honey, and many of them state that they must have last year's prices, approaching 25 cents, before they will sell.

Of course, the market is still bound to be unsettled, but it hardly seems possible that honey prices will hold to where they were a year ago, when the sugar embargo was in effect, the war on, and the price inflated, so to speak. We do believe, however, that a price approaching 20 cents for white honey should obtain, and the shortage of sugar should have not a little to do in getting it, and even in pushing it to a higher point. Such prices should be sufficiently remunerative to the commercial beekeeper.

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | Nov. 1 to June 1 | | | June 1 to July 1 | | | July 1 to Nov. 1 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $12.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 20.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

Capacity of yard, 5,000 queens a year.
Select queen, tested for breeding, $5.
The very best queen, tested for breeding, $10.

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

# EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

**A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

# BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments Our prices will interest you.

A trial order will convince you that our prices and goods are right.

**Send Us Your Inquiries**

**A. H. RUSCH & SON CO.**
**REEDSVILLE, WIS.**

# BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, $2; untested, $1.50. Price list free

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

**Archdekin's Fine Italian Queens and Pound Packages**

Untested queens, $1 each, 6 for $5.50; doz. $10. Select tested, $1.50. Safe arrival of queens guaranteed.

Package bees, without queen, $1.75 per lb. Packages with queen, 1 lb. and queen, $2.75; 2 lbs. and queen, $4; 3 lbs. and queen, $5.

My package is best and lightest in use. Saves bees and transportation charges. Particularly adapted to mailing. I advise mailing, as it is quicker and cheaper than express, as well as safer. Safe arrival not guaranteed, and I will not make good losses in transit.

**J. F. ARCHDEKIN, Big Bend, La.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

**QUINN'S QUEENS OF QUALITY**

Have no superiors—"There's a reason." Are Mendelian bred, good qualities accentuated. Gray Carniolans, Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease-resistant, white comb builders—they deliver the goods.
ITALIANS, 3-banded, line bred, pedigreed; need no boosting; they speak for themselves

**CHAS. W. QUINN Sabot, Va.**

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

# IMPORTANT ANNOUNCEMENT

Our New Steam Wax Rendering Department will be ready for business by September 8. We will render your old combs and cappings at the regular terms, which are as follows:

**Terms for Rendering Either for Cash or on Shares**

**OLD COMBS**

| | Cash Terms Per Pound | Share Terms Your Share | Share Terms Our Share |
|---|---|---|---|
| On 100 lbs. or more beeswax secured | $0.07 | 80 per cent | 20 per cent |
| On 25 to 100 lbs. beeswax secured | .09 | 75 per cent | 25 per cent |
| On less than 25 lbs. beeswax secured | .14 | 60 per cent | 40 per cent |

**CAPPINGS**

| | Cash Terms Per Pound | Share Terms Your Share | Share Terms Our Share |
|---|---|---|---|
| On 100 lbs. or more beeswax secured | .04 | 90 per cent | 10 per cent |
| On 25 to 100 lbs. beeswax secured | .07 | 80 per cent | 20 per cent |
| On less than 25 lbs. beeswax secured | .09 | 75 per cent | 25 per cent |

Freight or express charges will be charged to the shipper.

For your share of the beeswax we will pay you our best cash price, quoted on application any time, or our trade price to apply on bee supplies you may need.

Should you be in need of comb foundation, your share of the beeswax may be worked into Foundation at our regular working prices. Send for special price list.

Also, we expect to begin handling honey by October 1, as our new equipment will be ready by this time.

While at the New York State Fair arrange to make our exhibit your headquarters, as all beekeepers aim to do. Wednesday and Thursday are Beekeepers' Special Days.

**THE DEROY TAYLOR CO., Newark, Wayne Co., New York**

---

# Seamless Paper Containers

**THE MOST PRACTICAL AND ECONOMICAL CONTAINER FOR**

**Honey**

**Superior to any other single service container manufactured**

**Write for particulars and prices**

**THE SANITARY PAPER BOTTLE CO.** Sandusky, Ohio
415 Water St.

---

# Golden Italian Queens

Rustburg, Va., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1st to June 1st | | | June 1st to July 1st | | | July 1st to Nov. 1st | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $8 50 | $15 00 | $1 50 | $7 50 | $13 50 | $1 25 | $6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Safe arrival, purity of mating and satisfaction guaranteed

No Nuclei or Bees by Pound

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

---

# QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 years a Queen-breeder

| PRICES | Before July 1st | | | After July 1st | | |
|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 |
| Select unte'ed | $1.50 | $ 8.00 | $14.00 | $1.00 | $ 5.50 | $10 |
| Tested | 2.00 | 10.00 | 18.00 | 1.50 | 8.00 | 14 |
| Select tested | 2.50 | 14.00 | 25.00 | 2.00 | 10.00 | 18 |

**BREEDERS**—The cream from our entire stock of outyards, $5 each. Usually we can send all queens promptly after June 10th.

Breeders, select tested and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

**H. G. QUIRIN, Bellevue, O.**

---

# BEE SUPPLIES

**Let Us Figure With You**

Get our discounts before buying
Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
**142 Grand Ave., Kansas City, Mo.**

---

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**HONEY** **WANTED** **HONEY**

¶ Write us what you have to offer in extracted or comb. If comb state how packed, graded and quantity. If extracted, state how put up, mail sample and quote your lowest price. We will buy unlimited quantities if price and quality are right.

**C. H. W. Weber & Company**

**2146 Central Avenue** **CINCINNATI, OHIO**

**MARSHFIELD GOODS**

**BEEKEEPERS**

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

**A BIG STOCK OF**

**BEE SUPPLIES**

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road** **MINNEAPOLIS, MINN.**

**Shipping Cases for Comb Honey**

It is an acknowledged fact that comb honey put up in attractive Shipping Cases will bring a better price than the same honey put up in an inferior case. Our Shipping Cases are made of a good, clear grade of basswood lumber and will be a credit to any crop of honey.

TIN CONTAINERS FOR EXTRACTED HONEY

We have a good stock of—

**60 lb. Square Cans**
**12 lb. Square Cans**
**5 and 10 lb. Round Friction Top Pails**

We also carry in stock a complete line of all other beekeepers' supplies

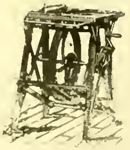
THE LOTZ 1 PIECE SECTION

**The kind that does not break in folding is manufactured by us**

Our 1919 catalogue and price list mailed to you free upon request.

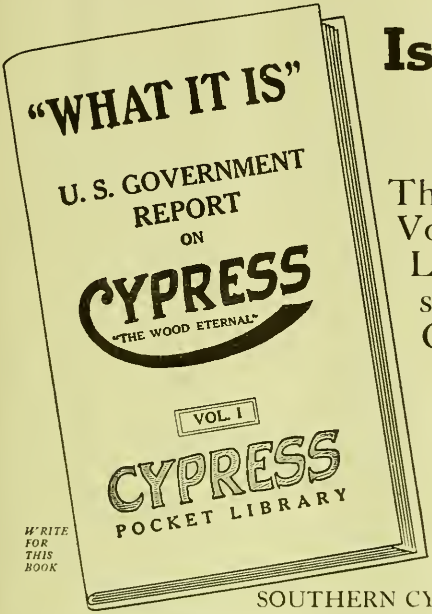
**August Lotz Company**
**Boyd, Wisconsin**

**BARNES' Foot-Power Machinery**



Read what J. L. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**



*WRITE FOR THIS BOOK*

# Is Uncle Sam's Word Good Enough?

Then Mr. Bee-man, just write for Volume I of the Cypress Pocket Library and read what our respected Uncle has to say about Cypress ("The Wood Eternal.") You'll then see why any beehive, or bottom or winter case not made of Cypress is not so good as it might be. 42 other volumes all free. The list is in Volume I. Write and it comes.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's If he hasn't it, *LET US KNOW IMMEDIATELY*

HIVES
FRAMES

MADE RIGHT BEE SUPPLIES
QUALITY SERVICE

SUPERS
SECTIONS

A COMPLETE LINE OF SUPPLIES

**THE KRETCHMER MFG. CO.**, Dept. A, Council Bluffs, Ia.

**HONEY, HONEY, HONEY**

We shall be in the market for any quantity, both comb and extracted. Mail sample of extracted and state price asked in first letter.

**Beeswax** always in demand. Cash or in trade.

"GRIGGS SAVES YOU FREIGHT"

**TOLEDO**

June is here and the big White Honey Flow with it. Don't get short of sections and foundation, the season promises to be good.

**Honey Cans and Cases**

Order these early, a limited number of second hand cans on hand at 75c per case

**GRIGGS BROTHERS CO.**
DEPT. 24 TOLEDO, OHIO

# THE NEW ROOT-WEED COMB FOUNDATOIN

More than 40 years ago, A. I. Root, while turning a clothes wringer, conceived the idea of a comb-foundation "mill" making practical the production of real comb foundation.

About 25 years ago A. I. Root and his organization encouraged, assisted and financed the inventor of the celebrated Weed Process of forming strong tough sheets of wax, as different from the old process of "dipped" sheets as the finest steel is different from pig iron.

And now, in the semi-centennial year of the Root organization comes **the most important announcement of all.**

After years of experimenting we are exceedingly pleased to announce to our many friends and customers that we will in the near future be able to supply a comb foundation made

## NEARER TO NATURE

A new process of ***Root-Weed Comb Foundation*** which we believe is one of the greatest improvements in comb foundation making that has ever been made. Our new process has to do with the refining of the wax and with the milling, resulting in a product more nearly resembling the natural mid-rib of the comb than any other foundation.

Before placing your orders for next season's supply write for further particulars, sample and prices after Oct. 1.

Our new process will be furnished only by ourselves and our authorized dealers and representatives.

## THE A. I. ROOT CO.

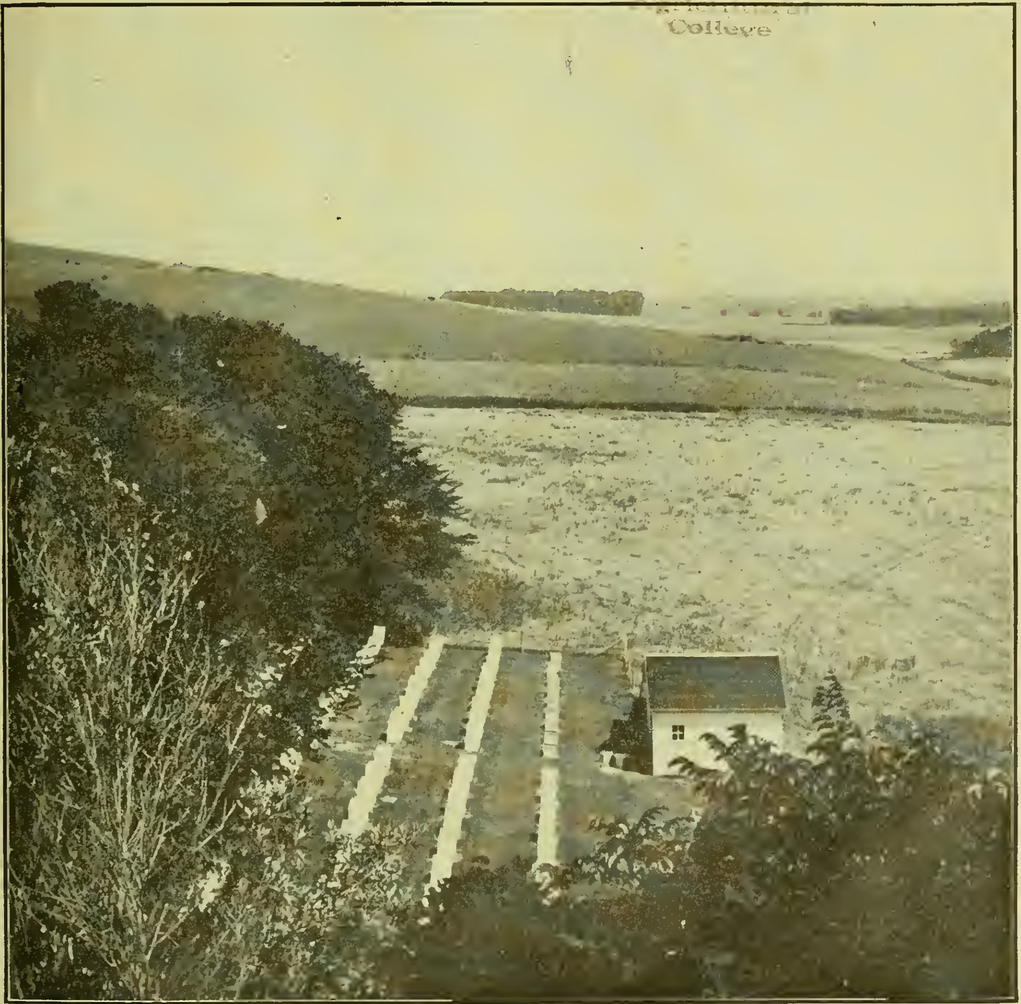
MEDINA, OHIO

Early order discount for September cash orders is 6%

# AMERICAN BEE JOURNAL

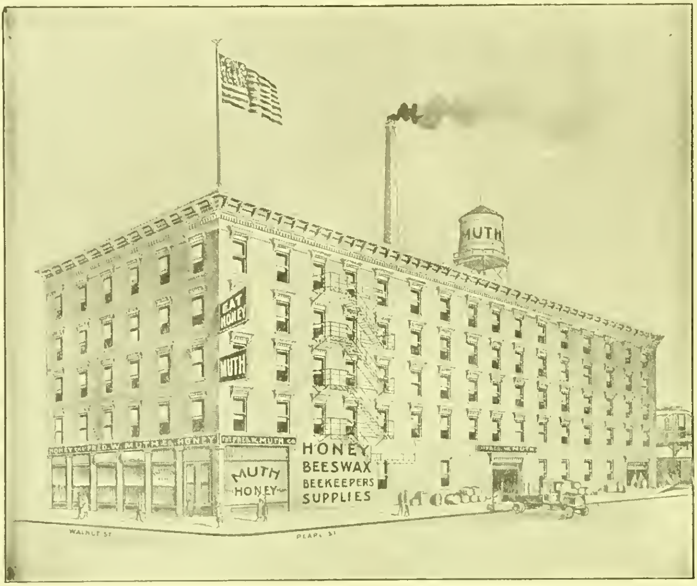
OCTOBER, 1919

LIBRARY of the
Massachusetts
OCT 2 1919
Agricultural
College



AN ATTRACTIVE IOWA APIARY

# Here's a Reproduction of Muth's New Home in Cincinnati



Anticipating the wants of the trade, and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

**WHY YOU SHOULD BUY NOW!** We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

**MUTH'S ADVANTAGES!** We sell at factory prices, *save* you freight and give you the finest bee supplies manufactured. Our new 1919 catalogue sent for the mere asking. Drop us a card now.

**LEWIS' BEEWARE**

**DADANT'S FOUNDATION**

**ROOT'S SMOKERS, EXTRACTORS, ETC.**

**OLD COMBS AND CAPPINGS**

Send them to us for rendering. We pay you the highest market price for Beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

**WANTED—COMB HONEY**

Comb and Extracted Honey find ready sales here. Tell us what you have. We buy Beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city, come and see us.

## THE FRED W. MUTH CO.

Pearl and Walnut Streets
CINCINNATI OHIO

"THE BUSY BEEMEN"

# Four Bee Books

**YOU SHOULD HAVE**

# IN YOUR LIBRARY

## First Lessons in Beekeeping

By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions

By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

## Practical Queen-Rearing

By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

## Langstroth on the Honey Bee

Revised by
C. P. DADANT

*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price $1.50**
Mailing weight, three pounds

**ALL FOR SALE BY**

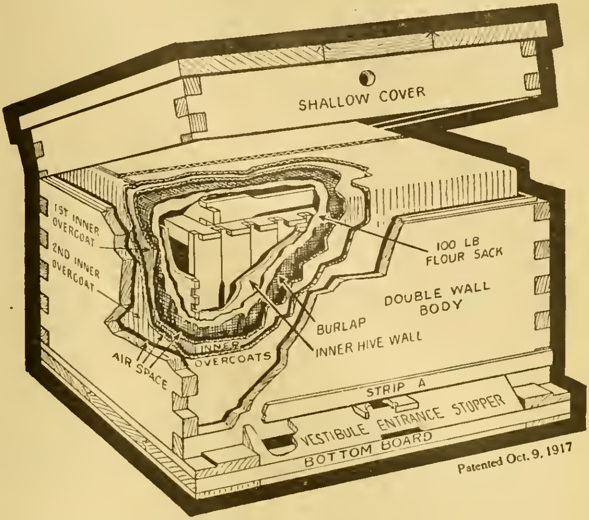
**AMERICAN BEE JOURNAL**
**HAMILTON, ILLINOIS**

---

## Winter Problem Solved

BY THE

# Hive with an Inner Overcoat



The above illustration shows the substantial, compact, neat and efficient equipment that winters normal colonies of bees perfectly.

It consists of a frame of honey laid over the top of the others, if you have no extras, one can be removed from the brood-nest for the purpose. A 100-pound flour sack is spread over the top and a piece of burlap 34x36 inches is laid over this. The First Inner Overcoat is telescoped down over the brood-nest in between the inner and outer hive walls, the flour sack and burlap being carried down with it. This has the effect of wrapping the brood-nest in a blanket. The Second Inner Overcoat is then telescoped down over the first. (The Inner Overcoats are removed in the Spring and stored away in the flat.) This insulates the colony with a ⅜ inner hive wall, with a flour sack and burlap wrapped about it, two thicknesses of corrugated paper board around the sides and ends and four thicknesses over the top, together with the intervening air spaces and the ⅞ outer hive wall. The work is done quickly and easily with no litter of packing materials.

It will pay you to try out a sample shipment this fall. For the next sixty days we will furnish five hives equipped as shown above for $27.50, F. O. B. here.

### TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24. 5-lb. Friction Top Pails in cases of 12.
2 lb. Friction Top Cans in crates of 612 5-lb. Friction Top Pails in crates of 100.
2½-lb. Friction Top Cans in cases of 24. 5-lb. Friction Top Pails in crates of 203.
2½-lb. Friction Top Cans in crates of 450. 10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

### SPECIAL PRICES

Crates of 100 five-pound pails, $8; crates of 200 for $15.
Crates of 100 ten-pound pails at $12.50. Sixty-pound cans, two in a case, at $1.15 per case. Shipments made from Michigan, Ohio, Illinois and Maryland factories.

## A. G. WOODMAN CO.

**GRAND RAPIDS, MICH., U. S. A.**

"Falcon" **BEE SUPPLIES** "Falcon"

HIVES, SUPERS, FRAMES, SECTIONS, FOUNDATION
**In fact anything in the line of Bee Supplies**

Have you ordered your supplies yet for the season of 1919 which is now with us, or are you waiting for the last moment to come around when the supplies now carried in stock will be nearly exhausted, or the shipping department so busy that they will not be able to give you the quick service which you naturally expect? Just stop and think what would happen if all beekeepers would do this. To relieve the situation and to help conditions in general, get your order in at once.

We are prepared to make immediate shipments from our large warehouses, which were packed to the brim before the season started.

You all know what the **"Falcon"** line is, and you ought to know what the **"Falcon"** service is. If you never ordered from us before, better let us have the next order to convince you not only for once, but forever.

Send for the Red Catalog and "Simplified Beekeeping"

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**
**Where the Best Beehives Come From**

**DO THE BEES "TAKE TO THEIRS FIRST"?**
**READ THE FOLLOWING**

Superior Honey Co.,
Ogden, Utah.

Montalba, Texas, June 11, 1919.

Dear Sirs:

I received your **SUPERIOR FOUNDATION** all O.K. and tried it in the brood-chamber and supers side by side with that of others who claim that the bees would take to theirs first, but they did not.

I never had tried your foundation until this time, but the bees draw it out nice and even. Some makes that I have tried they gnaw out, so I count yours the best that I have ever tried, and I will try to get it every time. Please send me your price list.

Yours truly,
LEO WARDEL.

When ordering for next season write us for special prices on our **SUPERIOR FOUNDATION.**

**SUPERIOR HONEY CO., Ogden, Utah**
(Manufacturers of Weed Process Foundation)

**The Diamond Match Co.**
(APIARY DEPT.)

MANUFACTURERS OF
**Beekeepers' Supplies**
CHICO, CAL., U. S. A.

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
**Apiary Department** **CHICO, CAL., U. S. A.**

**EARLY ORDER DISCOUNTS WILL**
**Pay You to Buy Bee-Supplies Now**

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**
**or J. W. ROUSE, Mexico, Mo.**

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

WHAT DO YOU DO WITH YOUR

BEESWAX

*GET OUR PRICES BEFORE DISPOSING OF IT*

**In times past** the beekeeper rendered his combs more or less well and sold his beeswax to the first party offering on it.

**Now,** the careful beekeeper will either ship all his combs and scrapings to a modern rendering plant to be rendered into beeswax or will render them carefully himself and sell his beeswax at the highest price for cash or to apply on his order for bee supplies.

**We Render Combs into Beeswax**

**We Work Beeswax into Dadant's Foundation.**

**We Buy Beeswax for Highest Cash and Trade Prices.**

Write to us for prices before disposing of your season's beeswax. We will send you shipping tags, our best prices either f. o. b. Hamilton or your shipping station and full shipping instructions. Give quality and quantity of beeswax you have to offer when writing.

Prices on rendering combs into wax and on working beeswax into **Dadant's Foundation** for the asking.

**DADANT & SONS, Hamilton, Ill.**

# A BIG DISCOUNT

Mark off 6 per cent if you send in your orders in September.
This is your early order cash discount effective September 1.
Our prices for Lewis Beeware for 1920 are now out.
You can stock up with reserve supplies at a low cost.
Labor conditions are unsettled and transportation is slow.
Present manufacturing costs preclude lower retail prices later.
It is good beekeeping to prepare for emergencies in time. So get out your **"BEEWARE"** catalog and send your order now.

**Every beekeeper who has honey to ship should get our quotations on shipping cases before buying. It will mean a big saving to you.**

**"HOW TO WINTER BEES OUTDOORS"**

This is the title of a new Lewis "How" booklet priced at 5 cents. Every beekeeper should read it. If you order one, our 1920 catalog of bee information will be also sent you. There are ten other "How" booklets on as many subjects. Our "Pocket Library" of eleven booklets at 5c each.

**LOOK FOR**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS WIS U.S.A.
MAKES THE FINEST

**THIS MARK**

**IT IS A GUARANTEE OF THE FINEST BEE SUPPLIES**

**THERE IS A DISTRIBUTOR SOMEWHERE NEAR YOU**

**G. B. LEWIS COMPANY,** **WATERTOWN, WISCONSIN**

AMERICAN BEE JOURNAL

VOL. LIX—NO. 10 HAMILTON, ILL., OCTOBER, 1919 MONTHLY, $1.00 A YEAR

# BEEKEEPING IN THE MISSOURI RIVER HILLS

## Glimpses of Conditions in the Sweet Clover Region of Northwest Iowa and Southeastern South Dakota---By Frank C. Pellett

SWEET clover is coming into its own in northwest Iowa. In the region about Sioux City there are thousands of acres covering the hills and stopping the erosion that would otherwise be cutting away some of the rich farms of that section. I have visited the famous sweet clover belt at Falmouth, Ky.; I have ridden for many miles through the finest sweet clover territory in the Arkansas River Valley and have seen many sweet clover districts of lesser fame, but nowhere have I seen finer sweet clover fields than in northwest Iowa, roundabout Sioux City. Bordering the river at this point is a wide range of hills of rich loess soil. The soil is very productive, but with continuous cultivation the humus content is rapidly removed. When this condition develops, the fields are badly damaged by heavy rain. Erosion is much more difficult to control on steep hillsides than on the gentle slopes. The farmers have learned that in order to prevent the washing of the land they must bring some crop into their rotation that provides a liberal supply of humus, or decayed vegetable matter to hold the soil. Sweet clover is ideal for this purpose, for it is a vigorous and rapid grower. In addition it greatly enriches the soil with a wealth of nitrogen gathered from the air and stored in the earth through the medium of the bacteria living in the nodules which grow on its roots.

The ideal location for the beekeeper is one where the farmers require some good honey-plant in their system of agriculture. In the sections where there is a large acreage of white clover pasture, alsike clover or alfalfa grown largely for seed, or where sweet clover is generally grown as a field crop, we find prosperous beekeepers.

In the immediate vicinity of Sioux City there are so many amateur beekeepers that the commercial beeman has much to contend with in the way of fighting disease. American and European foulbrood are both present and the beekeeper must be constantly on the alert to keep disease under control. Farther out, however in the direction of Vermillion, S. Dak., there are less bees present and some apparently ideal lotions not occupied. In the vicinity of a large city, we nearly always find disease much worse. Just why this is true we can only surmise. It is generally credited to the fact that much honey is shipped in to supply the markets, that there is more or less exposure of discarded sections and empty containers which are thrown into the alley or garbage can without being washed. The fact that there are so many people with a few bees in a limited area makes it very difficult to eradicate disease, once it gets a foothold. We do know that disease has long been established in the vicinity of nearly every large city which is a market center for honey. As far as can be ascertained it has never been eradicated from the vicinity of one of these centers after once becoming established. In

Near view of the Wilson apiary shown on our cover.

such a location the beekeeper must take the manipulation necessary to control of disease as a matter of course and give it the same attention that he finds necesary with swarm control or other timely activity.

With the extension of the sweet clover area, there has grown up an organization of beekeepers known as "The Western Honey Producers' Association," which handles a large part of the honey produced in that region. There seems to be a general impression that they are dealers rather than producers. While, as a matter of course, they do purchase a great deal of honey in the open market to supply their trade, they are essentially producers. They are very probably the most extensive producers of honey in Iowa, if not the Middle West. At the time of my visit, in July, the sweet clover flow was just on and they were operating twelve hundred colonies of bees within a radius of about twenty miles of Sioux City.

Seven or eight years ago the idea of an organization of honey producers who should market their own product through a central packing plant was conceived by E. G. Brown and Thomas Chantry, living at that time near Salix. W. P. Southworth, also a beekeeper of that locality, was interested in the plan, and they started out to form such an organization. As with most co-operative ideas, there was difficulty in holding the producers together, and while several manifested a good deal of interest for a time, they failed to stick. Chantry moved to Utah, leaving Southworth and Brown as the sole survivors of the party who started out to form their own marketing organization.

Brown had been a beekeeper since infancy, his father having been one of the first commercial honey producers in the Middle West. When Ed was 16 he left school to take charge of the bees. From that day till this he has been a honey producer and has seen all the ups and downs of the business, from a big crop and no market, to a big market and no crop. Southworth was a merchant for a long time and kept bees as a side line. As his bees increased he became more impressed with the possibilities of the business. His mercantile experience stood him in good stead when it came to marketing the crops. The packing plant had not long been in operation, when it became apparent that, in order to market their own product to good advantage, they must be able to supply their trade with honey through the entire year. This involved buying honey and packing under their own label to insure that they would be able to fill all orders promptly as received. One serious obstacle in establishing honey as a staple article has been the difficulty of providing a dependable supply. The grocer does not care to waste his time creating a demand for a product that he will not be able to supply more than six months in the year. In the past the beekeepers have sold their crop as quickly as possible after it was produced. This made a dull market at one season of the year with a bare one at another. The man who starts out to supply a regular trade soon learns that he can't get very far without being able to supply the demand constantly.

As the trade in bottled honey grew it seemed desirable to secure better railroad facilities and other conveniences lacking in a small town. They accordingly moved to Sioux City and last year erected a fine building with the latest equipment for bottling honey. The filling of the packages is done by machinery which weighs the contents exactly. Even the labels are pasted on the pails by machinery. With their own plant in operation, the handling of supplies along with honey was a very natural step. With twelve hundred colonies of bees of their own and a much greater expansion contemplated, their own orders for supplies are such that it pays to buy in carlots. What more natural then than to supply the many beekeepers in the vicinity of Sioux City?

Hospital colony where brood from colonies with foulbrood is piled up till all has emerged.

Although Southworth and Brown are all that remain of the original members of the enterprise, others have associated with them since that time. Among them should be mentioned C. S. Engle, formerly of Beeville, Texas, and C. E. Kautz, formerly of Brighton, Iowa. Both are experienced and practical beemen who are now in charge of part of the company apiaries. Each man has charge of a certain number of apiaries for which he is individually responsible. Sweet clover is grown so extensively that many of their locations will support from 100 to 200 or more colonies of bees. The great difficulty is not in finding pasture but in securing a location in an accessible place, and also in getting far enough from disease centers that the bees are not reinfected with foulbrood with discouraging frequency.

Since foulbrood is so thoroughly established in every direction the best they can do is to get locations as far from other bees as possible and then be constantly on the watch for it. At the time of my visit Engle was treating a few colonies where it was of recent development. It is never allowed to advance far in any colony. The colony is treated before it becomes weakened, this making a minimum of loss with each case. His method was to shake the bees with queen onto full sheets of foundation. An excluder was placed above the hive and the brood-nest replaced. After an hour or two, when the bees had become quiet, he removed the brood-chamber and car-

One of the Western Honey Producers' outyards.

Apiary seen from the hilltop.

ried it to a hospital colony. In this way he took away all the honey, and since the bees had the brood for a short time after shaking, there was less danger of swarming out. The brood from all colonies treated was stacked up several stories high to hatch out. The picture shows one of these piles. In about three weeks all the brood will have emerged and there will be bees enough to make a booming colony. In the background can be seen a hive four stories high. This is the result of shaking one of these hospital colonies. On opening it we found that four stories of foundation had been drawn in three days and filled with honey. Foulbrood insures expert beekeepers, as otherwise it is impossible to continue the business, and make it profitable. The fly in the ointment is the sideliner who does not have to make his few colonies pay, and when they die catches another stray swarm and starts again. There are always enough of such in the vicinity of every large city to perpetuate the disease.

When I visit the big producers I am always interested to see how they cut out unnecessary labor and equipment. The bigger the concern in every line of business, the more important it becomes to eliminate every unnecessary item of either investment or labor. Too much "overhead" has ruined many a good business. With a series of outyards there are numerous problems not met with the one apiary man. There is always the possibility of a move being necessary. Hive-stands and honey-houses are desirable at every apiary, yet they are not easy to move. Most beekeepers make shift with bricks or pieces of board at outyards. Such stands require constant fussing to keep the hives in position. The members of this firm have a special hive-stand that is cheap, durable, light and easy to move. They cut a good grade of composition roofing into strips four feet long. Under each strip are placed two strips of board in the right position to support both the front and back of the hives. Over the boards is placed the roofing, each piece making a stand for two colonies of bees. Such a stand serves as well as concrete for keeping down weeds and grass and costs but a small sum. If the apiary is to be moved, a hundred of them makes but a small pile in the wagon or truck.

They also build good houses, as will be seen by the picture. This building is typical of those being built at each of their yards. It is 16x24, providing sufficient room for extracting, or storing of supers and supplies. It is built of good material and the frame is built in 8-foot sections. It is thus possible to take it down and move it at slight expense. Where the 8-foot sections come together there are two studs or rafters, as the case may be. These are fastened together with bolts. In taking down the building, the bolts are removed and the siding cut down with a saw. The same applies to the floor. In the new location the sections are replaced in the position occupied prior to the move. In this way it is possible to enjoy the advantage of a roomy and comfortable building, without feeling that it will be a loss in case it becomes necessary to move the apiary.

None of the members of this firm likes to see poor beekeeping in the vicinity. As is usually the case, a number of farmers have apiaries near by which are more or less neglected. Where a man has bees enough to justify them, they care for these apiaries on a share basis, the farmer furnishing necessary equipment to put the bees into first-class condition. In one case they paid the farmer $2,500 in three years as his share of the output of an apiary which numbered 50 colonies to begin with. It is needless to state that this particular farmer has acquired a different attitude toward the possibilities of beekeeping.

One of our illustrations shows as neat and attractive an apiary as is to be found in the entire State of Iowa. It was formerly one of the company yards, but has lately been sold to a young man, James Wilson by name, who was for a long time an employe of the concern. The same apiary is shown on our cover, as it appears from the top of the nearby bluff.

The Western Honey Producers' Association has grown up from a small beginning. It was founded on the idea that production and marketing could profitably be combined in the same organization. While there has been the usual struggle, common to establishing any new business enterprise, if one is to judge from the appearance of their fine new building, to which a third story will shortly be added to care for the growing business, of the many apiaries with hives piled two to four stories high and rapidly filling with honey, the concern will shortly grow into one of the really big enterprises

SIOUX CITY TRUCK & TRACTOR CO.

Bottling and packing plant of the Western Honey Producers' Association.

of its kind. At the time of my visit there was an excellent prospect for an average yield of 200 pounds per colony of sweet clover honey, and I was informed that such a yield is not unusual with them.

---

## The Value of Winter Protection for Bees

By J. H. Merrill

IT is not difficult to circulate and have accepted a rumor such as "A bee will not sting you if you hold your breath," yet a fact which may be applied to practical beekeeping must be accompanied by abundant proof.

Dr. Phillips has given us, clearly, the reasons why bees should be given protection during the winter months. In spite of this, there are always plenty of people who have seen strong colonies in the spring that have wintered in cracker boxes, in hives large enough to thrust your hand in, and with no winter protection whatsoever. In fact, these colonies were so strong that they clearly proved to the satisfaction of the beekeeper that there is no need of taking any precautions for wintering bees in his locality. Another bugbear, which is frequently heard, is that there is "no need of winter protection in our locality, because we have such open winters." Some of the figures which will be given later deal directly with this point and seem to tell a very clear story.

Briefly summarized, the reasons given by Dr. Phillips why bees need winter protection are: (1) Bees are like storage batteries, containing a given amount of energy, which once expended is gone. (2) The bee is a cold-blooded animal and can raise the temperature within the hive only by consuming honey, thus transforming energy into heat, and by muscular activities. (3) When the temperature falls to 57 the bees form a cluster, with those in the center busily engaged in raising the temperature by muscular exertion. (4) If wintering conditions are such that bees can pass through the winter with but a minimum expenditure of energy in maintaining the high temperature, then these bees will have a maximum amount of energy left in the spring to carry on brood-rearing and to perform other duties in the hive.

(Contribution from the Entomological Laboratory, Kansas State Agricultural College, No. 47. This paper embodies some of the results obtained in the prosecution of project No. 126 of the Kansas Experiment Station.)

A colony that may have gone into winter quarters in good condition and appears, early in the spring, to be a strong colony, yet that has passed the winter under adverse circumstances, consuming its energy in maintaining a high temperature, will have but little energy left to carry on its spring duties.

Acting upon the theory that the best method of wintering was the one that would produce the largest number of bees at the time when the honey-flow really began, experiments have been conducted at the Kansas State Agricultural College to try to determine this point.

For the purpose of this experiment two sets of hives were used, one of which was placed in a spot sheltered by a fine natural windbreak composed of dense shrubs. The other set of hives was placed in the open where it received no protection from any windbreak. The queens in all of these hives were of the same age, produced from the same stock, and introduced the same day. As nearly as possible, the strength of these colonies was about equal in the fall of 1917. The amount of stores in each hive varied from thirty-five to forty pounds. In the fall, at the time when the bees were prepared for winter, a rather complicated system of weighing, which it is not necessary to explain here, was made to determine the exact amount of honey and the exact number of bees in each hive. For the purpose of this experiment it is estimated that there are 5,000 bees in every pound. This seems as fair to one hive as to another, in carrying on this work.

Honey house built in eight-foot sections to facilitate moving when necessary.

In each set of hives there was one 1-story hive, one 2-story hive, and a hive in packing case, with 4 inches of packing on the bottom, six on the sides and eight on the top, with the entrance contracted to a 1⅜-inch augur hole. The 1-story and 2-story hives had no packing whatsoever. Each of these hives was placed on a scale and daily readings of the weights were taken throughout each winter. In the spring of the year when the honey-flow had really begun, another complicated system of weighing was made to determine under which condition the strongest colonies were produced.

It is the intention to carry on this work over a number of years, and it is admitted that a larger number of hives would be preferable to the small number which are used. However, the general trend of results has been the same over each of the two years, and so marked as to indicate strongly what are the best wintering conditions for such a climate as is found in this locality.

During the winter of 1917-18, the average daily consumption of honey for the six hives for a period of 139 days, was half an ounce. During the winter of 1918-19, the average daily consumption of honey for the six hives for a period of 150 days was one-eighth of an ounce. During the early part of the winter of 1917-18, the consumption of honey was not very great. However, in January the amount of honey consumed was greatly increased, which showed that some brood-rearing began in January, and, throughout that month and the months of February and March, the average consumption per colony was about four or five pounds per month. The winter of 1918-19 in Kansas was known as an open winter, and in January, 1919, the packed hives consumed five pounds more honey than they did in December, 1918. In February the consumption remained about the same, but during March and April the amount of honey consumed was greatly increased, so that in one of the packed hives there was a loss in weight of 11⅝ pounds. As will be seen later, this honey was consumed in brood-rearing, as the colony which consumed the 11⅝ pounds was the strongest colony of the six. During the open winter, the packed hives consumed considerable more honey than did the unpacked hives. The average daily consumption of the 1-story unpacked hive, protected by a windbreak, was 1 6-10 ounces. In 1-story hive, not protected by a windbreak, the average daily consumption was 2 ounces. In the packed hives, the protected and unprotected, the average daily consumption was 2 6-18 and 2 9-10 ounces, respectively. The result was what would be expected, because when the bees are rearing brood they have to consume honey. The total consumption of honey in the packed hives for 151 days was 37⅝ pounds, which indicates how much must be left in the hives for storage, in order to winter successfully strong colonies. On May 4th, 1919, it was considered that the honey-flow had started and the spring weighing was taken, with the following results:

**Unsheltered—No Windbreak**

One-story hive, 11718 bees, 3 2-3 frames of brood.

Two-story hive, 16406 bees, 3½ frames of brood.

Packed hive, 36718 bees, 4½ frames of brood.

**Sheltered—Windbreak**

One-story hive, 14063 bees, 4½ frames of brood.

Two-story hive, 20936 bees, 3¾ frames of brood.

Packed hive, 38594 bees, 5¾ frames of brood.

Upon examining the above figures the value of the different forms of wintering is apparent. Whether protected by windbreak or not, the 2-story hives have about 5,000 more bees in the spring than the 1-story hives, and the packed hives have about 25,000 more bees. Figuring 5,000 bees to the pound, valued at $2.50 a pound, the packed hives would have $12.50 worth of bees more than the unpacked hives. The difference in the value of a windbreak is more apparent, as would be expected with the hives which were not packed, although there is about 2,000 bees difference in the packed hives in favor of the windbreak.

The comparison between number of bees in fall and in spring weighing is as follows:

| | 1917-18<br>Gain or Loss | 1918-19<br>Gain or Loss. |
|---|---|---|
| **No Windbreak** | | |
| 1-story hive | -332 | -3282 |
| 2-story hive | 2808 | -469 |
| Packed | 4578 | 22968 |
| **Windbreak** | | |
| 1-story hive | 4538 | 313 |
| 2-story hive | 13346 | 5936 |
| Packed hive | 15132 | 24844 |

The above figures show several things. The winter of 1917-18, in Kansas, was a very severe winter, in which the bees were confined to the hives for a long time without a flight. The winter of 1918-19 was one of those open winters when, according to popular opinion, there is no need of packing bees. An examination of the facts stated above will, however, dispel this illusion. For instance in the 1-story hive, during the severe winter, there were 332 bees less at the spring weighing than in the fall. After the open winter in the same colony there were 3282 less bees. In comparing the figures of all the other hives during the severe winter, with those during the mild winter, the fact is brought out that, in a mild winter the bees need to be packed even more than during a severe winter. Another fact which is distinctly shown in the figures is the importance of the windbreak, the 1-story hive in the open had 132 bees less in the spring than the fall, while the 1-story hive in the windbreak had 4538 more bees. In 1918-19 the 1-story hive in the open had 3282 bees less in the spring than in the fall, while the 1-story hive, in the windbreak, gained 313. However, the most marked result which these figures show is the value of the packed hive. During 1918-19, while one colony of bees was decreasing 3282, the packed hive gained 22,968. While the other 1-story hive was gaining 313, the packed hive gained 24,844. The difference between the packed hive and the unpacked hive during 1917-18 was not as great as 1918-19, because packing material used in 1917-18 was excelsior and shavings, while during 1918-19 it was forest leaves firmly packed.

As stated above, more hives would be desirable in carrying on this work, but it seems to be very clearly proved that the windbreak is very valuable in winter protection, that 2-story hives are preferable to 1-story hives for the bees that remain unpacked throughout the winter, and that the difference in the number of bees, between packed hives and unpacked hives, in the spring, is so large that it has justified the extra expense incurred in packing. The fact has been brought out already that no locality may claim immunity on account of the fact that it has open winters, as these open winters are harder on the bees than a severe winter, where brood-rearing is postponed until warm weather has set in.

Manhattan, Kans.

## The Queen Condition of Parent Hives After Natural Swarming

By Morley Pettit

A CORRESPONDENT has raised a question which is very important in connection with natural swarming. She has found that three of her "old swarms" have no queens, and wishes to know how to proceed.

It is a common experience where natural swarming is allowed, to find that some of the parent hives fail to get laying queens afterwards. By the time their condition is discovered they have usually become just a bunch of "buzzy bees," which are practically worthless because of their age and the difficulty of requeening them, and what is almost worse yet, they have filled their combs so full of pollen that about the only cure is to melt them down.

It is best to examine all parent colonies in three weeks after swarming and, if eggs are not found, give a comb containing eggs and very young larvæ. A week later an examination may reveal a fresh batch of eggs indicating that the young queen has got down to business. This may not prove that she was not laying before, however, for I have found **eggs only** one day, then a few days later **no eggs** in the same place. I think the workers being elderly and not used to babies, ate them.

When a young queen finally gets going well we are still not satisfied till she has enough brood capped to indicate that she is "off to a good start" and is not likely to develop drone-laying propensities early in her career.

To requeen colony which fails to prove a queenright condition, we first make sure it has no queen of any kind, then place on it, over an excluder, a nucleus having a full brood-chamber of combs and a good queen. One week later the order of bodies is reversed so that the nucleus on top becomes the brood-chamber of the colony.

Georgetown, Ont., Aug. 30, 1919.

## Another Short Course Announced

We have been advised that a short course for commercial beekeepers will be held at Yakima, Wash., beginning November 10 and continuing for five days.

Dr. E. F. Phillips, George S. Demuth, A. P. Sturdevant and H. A. Scullen of the U. S. Department of Agriculture, together with western men, will appear on the program. This is the first of these short courses to be held in the northwest, and it is hoped it will be largely attended.

Colonies used in Merrill's experiments.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

C. P. Dadant ........ Editor
Frank C. Pellett ........ Associate Editor
C. C. Miller ........ Questions Department
Maurice G Dadant ........ Business Manager

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

## Let's Play Fair

The publishers of the American Bee Journal try to use great care to make sure that no dishonest advertiser makes use of its columns. However, there is an unusual opportunity for dissatisfaction in the purchase of bees and queens from strangers. If a man sends us an advertisement to the effect that he wishes to dispose of his bees we can hardly refuse him space. The buyer should use some care to make sure that he is getting what he expects before he parts with his money.

We have a letter from a beekeeper who sent money to a well-known New Yorker for a colony of bees, in response to an advertisement of this kind. The seller made a mistake and sent the bees to a wrong address. As a result, the bees were not delivered for ten days. Most of the bees were dead and of course the colony was queenless. An order was then sent to a well-known queen breeder for a queen, and two weeks elapsed before the order was acknowledged. As a result the colony is bound to be practically worthless.

It is high time that steps were taken to place the handling of bees and queens on a business basis. Those who deal in queens or package bees should be prepared to acknowledge receipt of an order by the next mail and tell the purchaser approximately when delivery can be made. If immediate service is asked for, the money should go back promptly if the dealer is unprepared to fill the order. There have been too many disappointments of this kind the past season. It is true that the queen breeders have had, in many cases, to contend with unfavorable conditions. This does not excuse the unbusiness-like methods of some of them. The seller should remember that many customers are inexperienced and do not realize fully the difficulties of the breeders.

Several of our most extensive breeders have handled their business in a way to merit the continued confidence of their customers. These men have returned many unfilled orders, yet disappointed customers have written us pay them compliments because they were prompt and fair in their dealings. In contrast to these, several have caused complaints of short weights in package bees, slow delivery, poor packing and generally unsatisfactory service. A few have fallen down altogether, and up to the present have neither returned the money nor filled the orders.

The great expansion of our industry has been somewhat responsible for these conditions. The unusual demand for bees and queens has attracted men without sufficient experience or capital, and in such cases disappointment is to be expected.

## Bees in the Bush and Trout in the Brook

Wife and I took a trip to northern Michigan, in August, and stayed at Bay View, for 3 weeks. While there we called on several apiarists of the vicinity, 20 to 40 miles away. It is enjoyable, after visiting beekeepers all through Europe, to loiter in the different parts of our own country and see the methods followed. There is always something to learn.

On August 20, we went to East Jordan, via Boyne Falls, where Mr. Ira D. Bartlett and his pleasant and pretty wife came for us at the train. In the afternoon, we left the wives at home and went to his apiaries, several miles in the country, over hills and through valleys, and by such roads as the beekeeper in the brush usually travels.

Mr. Bartlett has a way of making an artificial flow which induces the bees to breed without actually supplying them with stores. He mixes sugar with water in the proportion of one to seven, or almost a gallon of water to a pound of sugar. This makes a very thin compound, which might be compared to nectar containing 86 per cent of water. It is so thin that the bees have to be attracted to it artificially; otherwise they would not notice it. Some old combs placed on the water or the use of a little richer feed at first will bait them. After they get accustomed to the supply, they come and take it readily.

This has the same effect upon them as a light flow of nectar. It renders them peaceable and causes them to breed. It helps in the introduction of queens, as the bees are less apt to be ill-natured during this light artificial flow. I can readily see the advantage of such feed in times of scarcity.

On the way to and from the apiaries, we passed several brooks of clear, cool water, running among the pines towards the lakes, with the same hurry and lively glitter as the little streams we saw in Switzerland, which all seemed to hasten, in their course to the goal, as if they were running a race. This activity of the cool water, combined with the crystal clearness of the streams, which all come from springs running out of the shady hills, is in such contrast with the murky and quiet flow of the majestic Mississippi to which we are accustomed, that I was very much charmed, especially as I was told that the brook trout is plentiful in these little streams and may be readily seen.

As we crossed a culvert over one of these little brooks, Mr. Bartlett stopped the auto and said to me: "Step down, I'm going to show you a trout." We got down, but I vainly looked, in a brooklet about 4 feet wide and perhaps 2 feet deep, for a sign of fish, large or small. There was nothing in sight.

Meanwhile Bartlett had gone a few steps away and was kneeling in the grass, apparently looking for a lost pin or a dropped penny. I wondered at his action. But he quickly returned, with a grasshopper in each hand. He at once threw one of the insects in the water, with enough force to make a slight splash.

With a swish and a swirl, a black streak, quick as greased lightning, appeared from under the culvert, and with a snake-like motion, splashed about the grasshopper, which disappeared and the water again became still, before I had time to notice whether the trout measured 6 inches or 2 feet in length. The second grasshopper had the same fate, though it took a second or two longer to secure the same black lightning effect.

I suspected that there might be some collusion and that Mr. Bartlett and that trout had an understanding, to astonish and deceive the tenderfoot, that I was, into believing that trouts are everywhere in those brooks constantly watching for their opportunity to grab the poor grasshopper. But Mr. Bartlett denied any connivance with that particular fish.

Well! the trouts of North Michigan must be plentiful and easy to catch, if they bite so readily? Oh, don't ask me, go and try it for yourself. I did not catch any.

### Are We Good Samaritans?

The following letter is selected by us from among a number of similar requests:

"Nancy, France, Sept. 1919.

"Editor American Bee Journal:

"What help could we secure from the beekeepers of generous America, in the way of beekeeping material (excluding beehives), during the coming season?

"Nine thousand hives of bees have been either stolen or destroyed in the Department of Meurthe & Moselle. It is unnecessary to say to you that the disaster sufferers have lost also their homes, their live stock, their household goods, their orchards and that even their fields are dug up with shell holes, trenches, etc., and covered over with barbed wire entanglements.

"I am respectfully yours,
"RENAULD,
"Treasurer of the Eastern Association of French Beekeepers..

"Address, Francois Renauld, Banker, 58 Rue St. Jean, Nancy."

We doubt whether any but those of our boys who have been actually in the trenches can appreciate the present conditions in devastated France and Belgium. Distant relatives of ours who lived at Grand Pre and whom we had opportunity to help during the war, as they had been forced to run away from their village and establish themselves temporarily in the undamaged districts, kept up a regular corespondence with us during the war. At the signing of the armistice, they were overjoyed and wrote us that they were going back home to rebuild whatever was destroyed, and invited us to come back and visit them. But very discouraged letters from them followed the joyful one. They had gone back, had found the entire village in ruins, so that they could hardly tell where their home stood. There was nothing there to do anything with, no valid workers, no lumber to be had nor supplies of any kind. Yes, they were to receive pay secured from Germany, by and by, but even that money will buy but little, as all European values are depreciated. The German mark is worth 18 per cent of its normal value, the French franc is worth 60 per cent of what it used to be. That is to say, a franc, instead of bringing nearly 20 cents in American money, now brings only 12.

If our produce is high in price, if our honey sells at 20 to 40 cents per pound instead of 8 to 15, as formerly, we owe it to the suffering abroad. America has done quite a great deal for Europe, but we must do still more.

The American Bee Journal now opens a subscription to help these French and Belgian beekeepers whose entire resources have been destroyed and who even with the German indemnities (when these are paid) will still be suffering. Let the friends give what they can, queens, supplies or money. An arrangement will be made to have these supplies sent by the most economic and direct way. Let us know what you are willing to do and we will publish the list in the Journal. We will head the list as follows:

Dadant & Sons, 200 pounds of foundation.

American Bee Journal, 10 Italian queens.

C. P. Dadant, 500 francs.

Supplies of different kinds may be forwarded during the winter. The bees must go when the weather is sufficiently warm, in April-May. We understand that bees are being bought in those parts of Europe not damaged, to give a small start to the former owners of colonies in the damaged regions.

Instructions will be given to the subscribers to this fund, in time for action.

### Endurance of Bees in Transit

In the December, 1918, number of this magazine, page 416, the editor gave his past experience in importing bees and wrote: "Very young bees did not prove as hardy as the active field bees, though the younger bees among the latter are best."

Concerning this statement, the present editor of L'Apicoltore,, of Milan, Italy, writes, in the June number:

"How is it that on this same matter we have diametrically contrary experience? When we sent queens to foreign countries, America included, it was precisely the workers that had never had a flight, that resisted the best during the trip, especially in the long trips, such as to Texas, to Jamaica, and even to Signor Dadant, Root etc. Other causes, we believe, must have entered in the cases of which Dadant writes, but we persist in believing that the youngest bees, not yet accustomed to outside flights, stand best the prolonged reclusion."

This matter is worthy of further investigation. What do the importers and exporters have to say?

### Large Hives Vs. Swarming

E. R. Root, in Gleanings, September, page 577.

"After interviewing Miss Crowder, we hunted up her father, J. F. Crowder, of Zimmerman & Crowder, of Pasadena, and the apiary in the background where this honey was produced. Yes, indeed, there was a very pretty apiary made of three and four-story colonies, about evenly divided between ten-frame and twelve-frame colonies. Dare I tell it? And would you believe it? The twelve-framers hardly swarm at all, while the ten-framers swarm—well, just as all ten-framers do, right in the same yard, with the same honey-flow and the same management. Both Zimmerman and Crowder testified to the comparative freedom of the big hives from swarming. It is the same old, old story that the Dadants, Holtermann and others have told us for years."

(Yes, and we would wager that the wider hives yield just as many supers full, though 20 per cent wider than the others, even if the others did not swarm. That is the old story, too, with us.—Editor.)

# SHIPPING EXTRACTED HONEY

BY M. G. DADANT

RECENT decisions by the Rate Committee of the Western Classification have resulted in slight advances in rate on extracted honey in different styles of containers. Beekeepers are apt to be surprised at this and wonder why the rates should be advanced when the rate on other liquid sweets is not advanced in proportion.

The fault, of course, lies with those beekeepers who are not careful in putting up and packing their product in proper manner for shipment.

A rate committee does not raise the rate on one article without reason. They take the list of claims which have been paid by the different railroad companies as a basis for formulating such increase. If there have been many claims presented for shipments of honey, the railroad company must defend itself by raising the rate sufficiently to cover the damage.

In the case of other liquid sweets, such as corn syrup, etc., these are practically all put up by large and reliable firms, that are well acquainted with the requirements necessary for getting their product through in good shape. They pack such products so as to reach the customer safely, not only to save claims and additional freight charges, but also that the product may give satisfaction.

Another thing is that these liquid sweets are usually shipped in carloads to distributors, and from these distributing houses shipped out to the retail grocers. The amount of local freight business is, therefore, very small, and the distance such freights go is usually short. The amount of damage should be proportionately small.

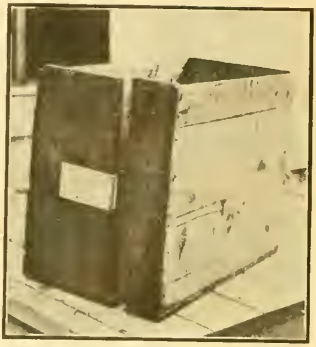
Of course, not all beekeepers pack their honey poorly. But the careful, thrifty beekeepers who pack their honey securely must help pay the damages claimed through shiftless packing and leakage. It behooves every beekeeper, therefore, to pack his own honey securely and urge in every instance that his neighbor do the same.

In considering shipments of honey, there are three factors which enter into consideration, in determining finally the proper freight rate. The first of these is the quality of the product, the second is the containers, and the third is the packing case in which the container is shipped.

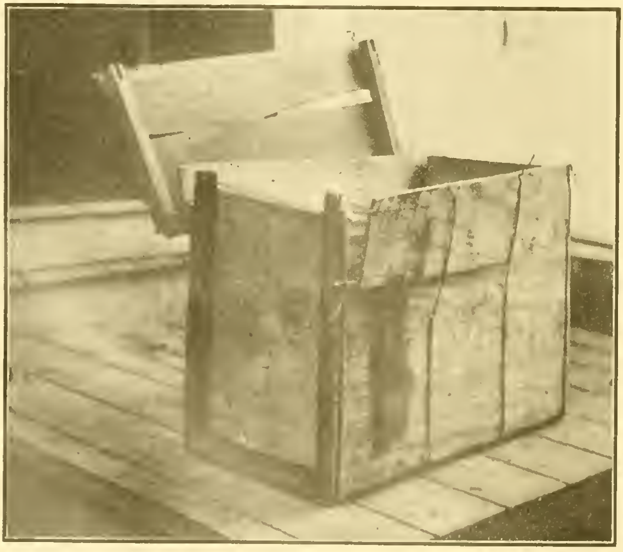
### Quality of Product

In spite of continued urging on the part of all educators and bee papers, there are still large numbers who keep bees and do not know what ripe honey is. So a great deal of honey is extracted when it is yet unripe, and it ferments after being placed in the packages.

We believe that the reader would be surprised if he were to visit any of the large distributing centers where honey is received in all styles of packages and from all directions. Many such shipments come in leaky, the cans bulged, barrels with staves broken in and in some instances contents completely gone from bursting of containers, owing to the fact that this honey was shipped when unripe, and had fermented enroute.


Ends without cleats are in danger of splitting.

The honey commission merchant and the large dealer must guard himself against such shipments and the result is that the loss is prorated in many instances against the good shipper as well as the poor one. This also accounts for the fact that in many instances beekeepers are dissatisfied with returns on their honey when it left their hands in apparently good order. We recall one shipment of three or four barrels from the South which had been put up unripe. One barrel came, or at least one or two staves of the barrel came, most of it being left on the car floor. Another barrel was about half full, the other two were badly leaking.


The veneer case is too light to carry two cans of honey safely by freight, and should never be used.

Another item, entering into this, is whether the honey is to be shipped in liquid or granulated form. Of course, if the beekeeper intends to hold his honey until granulated and then ship, there will be considerably less danger from loss on the road, and he could afford to use a little less strong package, although it is not desirable.

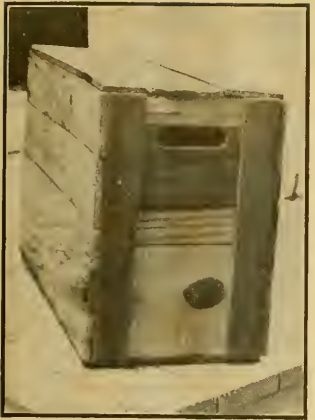
In any instance, honey that is to be shipped should be of high grade, not only to guarantee its safe transport, but that it may give satisfaction at the other end.

### The Honey Container

It would hardly be advisable for the beekeeper to insist upon a heavier grade of glass in choosing his glass packages. Glass containers, as made by the large factories, conform to certain standards and are sufficiently strong to stand freight shipments if properly packed. Of course, there will be the usual breakage, as with all shipments of glass.

In tin honey containers, the beekeeper has a little more choice. The ordinary friction-top pail, in the small-size pails is, of course, the best package. The other style of tops, loose fitting, should not be used in making shipment. All friction-top pails are usually made of the same standard of tin, so that the beekeeper cannot go far wrong if he orders any of the standard friction-top packages.

It is in the 5-gallon or 60-pound con-



A good case costs a little more, but carries its contents safely to destination and its general use would bring a lower freight rate.

tainer that the weight of the tin varies more. The beekeeper should insist that his 60- pound cans be sufficiently heavy to carry the honey he is to put in them. A tin of the basis of at least 107 pounds should be used.

Barrels, if properly made and properly packed, would make the very best containers for honey. It is probably, however, in barrels that the greatest loss occurs. This arises from the fact that the beekeeper does not buy the right quality of barrel. It must be remembered that honey, instead of soaking up the staves by giving out moisture, rather absorbs it. The utmost care, therefore, must be used in selecting a barrel which will not dry out after it is filled with honey and thus cause leakage.

It may not be amiss to mention here that it is a great mistake for any beekeeper to soak his barrels so they will be tight and hold honey. The unavoidable result of this is that honey in time absorbs the moisture from the barrel and the leakage is worse than ever. Staves should be tightened thoroughly by driving down the hoops and making the barrel absolutely honey-tight when dry.

Barrels made of soft wood and with six hoops or less are very much inclined to show leakage when honey is placed in them. In fact, we would recommend only a hard-wood barrel with at least eight hoops. The ordinary commercial alcohol barrel is the best package for honey. It is well made and will carry its load with very little loss.

In fact, in our many years of using such barrels, we do not remember of having a single loss.

### Shipping Packages

The barrel requires no further packing for shipment if it is well selected and carefully tightened.

With glass packages, the container is usually furnished by the glass manufacturer and conforms to the standard set by the railroad. There is bound to be a great deal of loss in shipments in glass containers, and the freight rate must necessarily be high to offset this.

Glass packages are not usually shipped very long distances by local freight. The small producer buys glass packages and sells his honey in this shape to the local stores and the nearby towns. The large producer guards against losses by either shipping in carlots to distributing points or by carefully packing before sending out.

It is in tin packages, probably, that there is the greatest amount of variation in the style of box used. Some of the boxes are so flimsy they will hardly stand hauling to the depot, but the shippers expect them to be carried safely by the railroad company the length of several States to destination. The friction-top packages should be in boxes with seven-eighths heads and three-eighths lumber for sides, top and bottom. The heads should have hand-holds so they can be easily transported. Besides this, such boxes should be made of good, strong lumber which is not apt to split and thus damage the box through rough handling. Then, too, the amount of honey should not be so great in each box that the weight of the contents will render the box inefficient. Not more than six 10-pound cans, twelve 5-pound or twenty-four 2½-pound should be placed in one package. The lids of the buckets should be driven down tight and the lid of the box should fit against the lids of the buckets so as to prevent them from working loose. Another thing which is very often neglected is care in nailing the boxes together. Very often nails are driven inside and pierce the cans, so leakage occurs from the start. If coated nails are used there will be less danger of their pulling out and accidentally being again driven so as to pierce the tin instead of the lumber.

If small shipments are to be made by express, of two or three cans, it is usually best, besides other safeguards, to have a handle to the box, to secure safe arrival.

The two-sixty-pound case has the greatest strain upon it, since it contains 120 pounds of honey. It would be well to have these cases made with one-inch heads and one-half-inch sides, bottom and top, with a wood partition in the center of at least half-inch lumber. This makes a very heavy case, but more expensive than the beekeeper desires. It is, however, imperative, if shipment is to reach destination in good shape, to have the heads made of seven-eighths lumber and the sides, bottom and top of at least three-eighths. This lumber should be straight grain and not shaky, and nailed with cement-coated nails, so that it will not pull apart in transit. A small additional expense on the part of the beekeeper in selecting his packages would go a long way towards securing safe delivery. It is negligence in the choice of the packages which has caused the freight advance. As stated previously, the companies have to figure upon losses paid and must necesarily raise the rate so that there be some remuneration in handling this class of freight, or else refuse the business entirely.

We would like to see a definite standard set for all styles of packages and containers. With this, we believe that the losses could be minimized and freight rates reduced. These Classification and Rate Committees are, of course, working for the best interest of the railroads, but are willing to listen to the arguments of the shippers.

Then, too, there is no distinction made between the ordinary domestic case and the export case. The export case has twice the handling at least, since it must reach the seaport, be transported on board ship, unloaded on the other side, and again hauled by railroad to destination. Export cases should be made considerably heavier than domestic cases, and this

The soft wood barrel with six hoops at left is unsafe for shipping honey. The hard wood barrel with eight hoops at right will carry safely.

is of even more importance than carefully packing the honey for home shipment. Our export market can easily be diverted to some other source if we are not careful in furnishing the best grade of honey put up in proper packages so it will reach them in good shape. There is bound to be competition on the part of other large markets, and should they furnish a better case, a better packed article, they will get the business and in time we will lose out.

## The National

To the Beekeepers of America:

AT the annual meeting of the National Beekeepers' Association at Chicago last February, there was evidence of dissatisfaction with the existing National organization. Provision was made for a convention of delegates from the various State associations to meet in Kansas City on January next. These delegates will come together to put into concrete form your views of what a National Beekeepers' Association should be. Your delegates must answer the following questions and many others:

Shall the National be exclusively a social and educational organization?

Would such an organization satisfy the needs of 800,000 beekeepers?

Has the National kept pace with the development of American beekeeping?

Should the National foster the organization of co-operative exchanges in the various States and take an active part in the business life of American beekeepers?

Shall the annual meeting of the National be a social meeting with an educational program, or shall it be a business meeting of delegates from State organizations?

What shall be the future relation between the National, State and County organizations?

Shall the National undertake a nation-wide advertising campaign?

Shall membership be open to anyone, or shall it be confined to bona fide honey producers?

Shall the National maintain a paid Secretary and an office which is open for business the year around?

These are some of the questions which will come before the meeting of delegates at Kansas City. Your delegates must be present or the opinions of the beekeepers of your State will not be represented.

The well-organized States of the great West will be there. The delegates from the central and eastern States should be there to present their opinions. Nearly all organizations in the central and eastern States will hold annual meetings within the next three months. This matter should be taken up at each of these meetings. By all means send a delegate to voice your sentiments.

It is not a question of whether the National shall live or die. The National will live, but its future activities will be modified to suit the needs of the beekeepers it represents. Whether it shall represent a section of the country or all of the nation, may depend upon whether or not beekeepers from all sections participate in its reorganization. It is incumbent upon every organization to take some action on this matter.

B. F. KINDIG,
President National Beekeepers' Association, East Lansing, Mich.

## Pedigreed Mating

By D. M. Macdonald

THE scheme of improved breeding dealt with in my last article (August Journal) involves the pedigree of both sire and dam for several generations. We thus secure at the start that "blue blood" on which to erect our superstructure. Building on this credit balance we can concentrate on improvement all along the line.

We have some queen-breeders in this country who work by pedigree. Year by year advance has been secured by patient and diligent work. All medium, as well as poor mothers have been discarded. Only the best of the best have been retained. Even of these the various degrees of comparison have been sifted, and the lower grade eliminated. A very high ideal has been striven for from the start and year by year the tendency has been to raise the standard nearer and nearer towards perfection. The climb up the many rungs of the ladder may be slow, but it has been steady. Healthier bees have been the result. Longer lives are claimed. Prolificness has undoubtedly been secured. Gentleness when manipulating is more marked. Faults, such as over-propolizing, have been considerably eliminated. The pedigree of each queen is noted, and a reliable record kept for many generations. All this, if carried on long enough, and if the advance is along proper lines, must tend towards the betterment of each succeeding generation. Our cattle breeders have done it, why should not we, who can rear several generations in a single season?

### Isolated Stations

Some years ago a scheme was formulated in our island to improve our bees by breeding better queens on the basis of pure (and comparatively controlled) mating. Working from several mating stations in centers where the mating of tested queens and specially bred drones could be controlled, all the best procurable were to be systematically improved. These stations were to be planted down in isolated districts, or in islands off our shores, where no contamination by inferior strains was to be feared. Isolated stations, however, mean isolated work. There is here no systematic plan, no combination of effort, no concerted action. Every individual would work at least mainly for his own hand. That has been our weakness hitherto. One worked for color alone, of all aims and objects one of the most fallacious. Another worked for outward beauty, forgetful that beauty is only skin deep, and that softness and delicacy might more likely result. A third strove for gentleness, in itself a virtue, oblivious of the fact that anemic tendencies and low vitality might come up top in securing mildness of temper and disposition. Longevity was the professed aim of yet another set of experimenters. Lazy bees live long, inactive bees take long to wear out, but neither are desirables when breeding for improvement. Apart from all this there was a want of combination or preconcerted effort in all this design of isolated work without control from some central authority.

Messrs. Root, in volume XIV of Gleanings, put forward a scheme which was formulated to mate queens by drones liberated in one of the largest glass houses in the world. In spite of its size, the

New apiary started at the White Sulphur Springs resort in West Virginia. The owners expect to increase to 300 colonies in order to be able to supply their patrons with honey from their own yards, the year around. The crop in West Virginia is good this year, according to State Apiarist, Charles A. Reece.

chosen sire, I fear, would find himself "cabin'd, cribbed, confined," and it is questionable if he could put out his best effort in the race, and it is perhaps more questionable if the best of three would be chosen to act as Prince Consort. This system has long been the design of many minds and has been tested again and again only to be dropped. Artificial copulation has been only a dream, although assertions have been made that success had followed a trial. No, only in the distant depths of the pure ether can queens be mated. Man can say that only pure drones shall be reared, therefore only such can fly—thus far he has controlled true mating. Any scheme for advancing further must be the work of no single individual. I would prefer to think not even of any single State, but of your united Republic. It should be a national affair, financed by a government subsidy, and the very best beekeepers should be chosen to formulate a scheme, to lay down rules of breeding, to guide and direct the procedure. Yearly, half-yearly, or, better, quarterly conferences should be held. Data should be digested, the chaff winnowed out, the questionable grain should be rejected and only the best of the very best retained.

Nearest to my ideal of a scheme for securing controlled, pure pedigree mating, however, comes the Swiss Beekeepers' Association, with its rearing of special mothers (the dams), select purely nurtured drones (the sires), and their isolated centers up amid the Alps, where queens can be mated with an accuracy and guarantee of purity obtained nowhere else so certainly. Their procedure is no haphazard one. They act in combination on the same principle which guides them as a Republic. Every association, as in the case of each Canton, takes a part in the management of the confederated effort, every beekeeper, indeed, and more especially every queen-breeder, is a member of the league, which settles every fundamental of the scheme under which they all work individually and collectively. Well-devised rules are followed implicitly, results are tabulated, tested and reconfirmed or rejected.

Yearly, or half yearly, there is held a conference of the different breeders, where results are discussed, new plans are formed, old ideas modified, or shred as a result of acquired data, the fruits of observation and experience. After discussion further unified effort agreed on. One isolated member has an experience which he estimates is of high value. Others may have quite the contrary experience, tending to disprove its value further than a mere result of chance. The result may be a mere "sport." One man, one mind, one experience, does not count for a final decision, although it may mean further testing. When, however, ten, twenty or more chronicle the same result, working under diverse circumstances, surroundings and climates month after month, year after year, there is a weight of testimony which cannot be ignored. This even does not pass muster until it is tested, sifted, analyzed, put through the crucible. All the good is retained, all the questionable further tested and only the good put into circulation for dissemination and use.

Here is where the weakness of queen-breeding in this country and America comes in. Every breeder is a law unto himself. Each one runs his wagon on his own little line of tiny rails. What I desire is a universal railway with one gauge, under the authority of a central controlling power.

Dufftown, Scotland.

## Large Vs. Small Hives

On page 229, first column, you say, "And we, old heads in the commercial line are apt to overestimate our knowledge and make light of the theories brought forward, backed by experiments, which sometimes contradict our preconceived ideas. Much that we think we know we have to 'unlearn" or correct."

I think you are as much prejudiced in favor of large hives as I am in favor of small ones. There are several great advantages in the modern systems of beekeeping. First of all, I will name the movable frame. We will call it a handle to a comb of honey or brood, so we can take hold of the handle and remove the comb of honey or brood and put it back where it was before or put it in another part of the hive or in another hive.

If we have two different-sized frames in the same yard we are restricted and we lose one of the greatest benefits of modern equipment.

Second, I will name the divisible hive. All modern beekeepers divide their hive into brood-chamber and super, and I might say that all of them divide their super into parts, the advantages of which are too evident for me to mention.

Now tell me why some of these progressive beekeepers stick to a great big undivided immovable brood-chamber that they have to always leave in one place or have a man to help move it?

I know just what you will say. To prevent swarming; but I think we might better say, to suppress or prohibit swarming; but the bees often build little speak-easies that we call queen-cells, that they hide in the middle of their brood-nest and we have to send detectives to hunt them up.

The detective takes out each large frame, smokes or shakes the bees off and then hunts for speak-easies. Sometimes he finds them all, and sometimes he doesn't; but you all know how it is, I don't need to tell you.

When the brood-nest gets full they put most of it up stairs and then next week do it over again and hunt every week, top and bottom, for speak-easies, and so on 57 different ways, to try to prevent swarming; but the bees have 57 other ways to get ahead of you.

One big brood-chamber with two or more different-sized supers for comb and extracted honey is a very good way, and I would not say a word if I did not know a better way.

All single brood-chambers, whether large or small, are sometimes too small and sometimes too large, and with large hives and deep frames the top-bar must be heavy, the standard is seven-eighths by seventeen-sixteenths, leaving only five-sixteenths between, and if the frame above has no comb at the bottom the queen is simply prohibited from going above.

Then if the second brood-chamber has shrunk three-sixteenths and the bottom-bar covers five-sixteenths space, the queen is excluded from going above.

By using shallow brood-chambers (5 11-16) and following Fowler's new system everything is changed and 56 out of the 57 varieties of preventing swarming are eliminated and the poor beekeeper's nerves have a rest. No swarming, and the maximum yield of honey with much less work, and no worry.

The notion that the queen either likes to lay, or that she does lay in a circle is most all imagination.

In the cool spring and a cluster of bees to keep the brood warm, the brood is in a circle, simply because there is no other warm place to lay.

People on a cold day form a circle around a hot stove, but it is a love for the stove, not the circle. On the last of May I hived a new swarm of bees (11 pounds of bees) and in four weeks they occupied 8 chambers and the queen laid in every one. The next day, after putting on the eighth super, there were eggs in it. There was brood in 28 frames at one time.

She commenced at the bottom super on the sunny side, and after laying in 5 frames she commenced in the second super on the sunny side, and kept on the sunny side until she was in the 5th super, then she laid in 8 frames, but kept away from the north side of the hive.

This is an experiment that contradicts our preconceived ideas.

I have 20 swarms of bees that are giving me more honey than ever before, without a single swarm, in fact, without a single queen-cell. This, also, contradicts our preconceived ideas in regard to swarming. Other bees near by were swarming more than usual. I bought two 3-pound swarms from a lady with bees in the top of the house, no other bees near.

Of course, I would have to try my system for years and years to prove that it is an absolute prevention, and even if I know how to prevent swarming, I am like many others that do not always do what they know how to do. C. E. FOWLER.

New Jersey.

The above letter evidences exactly what we hold, that in large hives the queen usually confines herself to one story, while with shallow hives, she roams all over a number of stories. The writer of the article seems to think that that is what he wants her to do; we don't. We want our queen below, in a story that is sufficient for her. As for hunting queen-cells, we never do it, as it is unnecessary with our management.

It may be that we are prejudiced upon this matter, but if we are, it is after constant trials of both styles, large and small brood-chambers, in large numbers, and we doubt that our correspondent and critic has had a similar experience on as large a scale.

As to an **absolute** swarm prevention, we do not believe there is any such thing, or ever will be. C. P. D.

## What the Newspapers Are Saying

### Serious, Ridiculous and Frivolous Extracts From News Dispatches About Bees

#### Bees Re-Steal Honey

Lawrenceburg, Ind.—When Robert E. Terrill went to his storehouse to get a quantity of honey he had taken from his swarm of bees, the honey was gone. He supposed thieves had taken it, but later noticed bees about the storehouse, and made the discovery that they had carried the honey back to the hives, gaining access to the storehouse through a keyhole.—Greensburg (Ind.) News.

* * *

#### Bees on a Missouri Farm Follow Plane Loaded With Flowers

Patterson, Mo.—The latest thing in air plane stories comes from the bee farm of Madden Polk, near here. It tells how a colony of the honey-makers were stampeded by an aeroplane passing over the farm carrying a cargo of flowers. After the bees had made their hurried exit it was learned that the flying machine was carrying a cargo of magnolia blossoms which filled the air with fragrance. When the bees on the Polk preserve got a whiff of the unusual aroma, they left in swarms, it being estimated that a half million in the 50 colonies on the Polk place forsook their hives and flew after the plane. There were enough young bees left to protect the hives, but Polk had dismal visions of the luscious honey somebody else would gather from the runaways.—Poplar Bluff (Mo.) Citizen.

* * *

#### Unique Use of Plane

If Nelson W. Peck had gone up in an air plane a year ago instead of waiting till this morning, he figures that he would have saved $10,000, though it cost him a dollar a minute to stay up for an hour and a quarter this morning.

Peck is one of the leading beemen of the valley, and, instead of the 1,000 stands he had a year ago, he has now only 250. Bees in the others were killed by absorbing dissolved spray. "From the air plane I could pick the proper places in which to put my stands,' he says. "I located some such places by automobile, but did not notice, from ground level, that there were orchards to which the bees will have easy access. From the plane I could see which stands should be moved and which can be left. I expect to make three more trips before I have finally placed all my bees."—Yakima (Wash.) Republic.

* * *

#### Migratory Beekeeping

Paulding, O.—Dr. Kohn & Son, who operate an apiary at Grover Hill, this county, recently received a car load of bees from Apalachicola River, Fla., to aid an experiment by S. W. Summerfield, Toledo, owner of the bees, and Dr. Kohn on migratory beekeeping.

The bees have already produced 50 barrels of honey. After "work" this summer they will be shipped back to Florida. The freight on the car of bees amounted to $455.64—Toledo (O.) Blade.

* * *

#### Bees' Stingers Make Profitable Crop

Raising bees for the stings pays an eastern woman better than keeping them for the honey which they would produce. From these stings is secured the purest formic acid obtainable, and the customers are the manufacturing druggists of the country. During the past 24 years this woman has supplied one firm with 25,000 annually, other concerns take from 500 to 5,000 each year, making a yearly trade of 50,000 stings. To produce this number but two colonies of bees are necessary, while it would require 50 colonies to make an amount of honey equal in value to the stings.

The manner of taking the sting from a bee is simple. The bees are first gathered in a specially arranged box, by shaking a comb on which they are working, over the mouth of the box. Next, in a room with all the shades but one drawn, the box is opened. As the bees come out of the box they are attracted to the lighted window, and cluster there on the glass or screen. Mrs. Beekeeper picks up the insects by their heads and, holding them under a magnifying glass, draws the stings. For this purpose a small pair of tweezers is used. The stings are placed in a dish filled with milk sugar, which covers them with a coat that prevents decay.

Each sting contains a small amount of formic acid, which is removed by distillation. This acid is used in the treatment of rheumatism by homeopathic physicians, being administered in much reduced strength, while doctors of the regular school use it, reduced one-half, for restoring circulation in cases of paralysis. Formic acid was one of the first of the solid-fat acids discovered. It was originally obtained by distilling common red ants (Formica rufa) from which the name is derived.—Popular Mechanics Magazine.

J. H. Warren of Elliott, Iowa, appreciates a bee-tree.

## More About Santo Domingo

By H. Brenner

AMONGST the letters enquiring about beekeeping conditions here, the most interesting was from Mr. P. F., of Conastota N. J. I will answer his enquiries first.

The cost of living is prety high here, but I think a beekeeper will find at once free living for his work and knowledge, and it won't be long before he can earn wages, start apiaries on shares, or establish himself if he has some means. Three years ago I worked in Porto Rico for my living and gained my knoweldge of tropical conditions, etc., without spending my money. I am only sorry I did not come immediately to Santo Domingo. I have not traveled on roads yet. We established apiaries on river banks, sea shore or along the small railroad we have here. There are several beekeepers in Sanchez, inside a mile or two, with at least a thousand colonies. Two of these men understand English.

The most serious drawback is the lack of reliable help. Health conditions I do not know, except that I never have been sick, and my health is improving, or I would not stay. California, which I visited four years ago, did not agree with me. I am an old man, nearly 60 years old, and I have not found a native yet who can outdo me in manual work. Do not send me stamps. It is prohibited to export stamps. Every letter is opened by the censor.

About passage: The Lloyd line sails about twice a month from New York, direct to Sanchez, and from there to Santo Domingo City. The same steamer returns within four to six days. Passage is about $40. My opinion is that the more our countrymen settle here the better it will be for our glorious country.

Three weeks ago I crossed the mountains with three men and a pack mule to establish an apiary in Cabreras, where we had 80 colonies in hollow logs, waiting to be transferred to frames and foundation. The next day I sent two men with a pack mule to the hamlets around to buy all the gasoline cases that they could find, take them to pieces and transport them to the apiary, where we nailed them together to serve for supers. Then I put them to nailing and wiring frames, which had been sent ahead of us around the coast in a sailing vessel, and putting in foundation. I made six bottom-boards and three scaffolds for the transferred colonies out of timbers from a wrecked vessel, which I found plentiful at this part of the shore. For tops I used boards from cases, and on top of the board a leaf of the royal palm to cover the cracks. When we transferred the seventh hive I used the bottom-board from the first one, and so on. Each colony had about 2 or 3 transferred combs with brood and 3 foundations. The fourth day I found a colony queenless and concluded to go back to Sanchez to get a breeder to rear cells. So back I went with my favorite man. I found more work than I expected and other things also kept me from going back until the eighth day. When I went back with my breeding queen in a two-frame nucleus, about an hour after we left the mountains it started raining, and let me tell you it came down in buckets. I wished my friends in southwestern Texas, who are needing it, had the hundredth part of it. I did not have any raincoat and my umbrella was of no use in this downpour. The natives have little clothing and don't feel the rain. It rained continuously. We crossed two rivers, and towards night we reached a saw-mill, where the American manager had a nice waterproof tent. I stopped, had supper and hot coffee with him and borrowed his raincoat to finish the trip. We arrived in Cabreras at 11 o'clock. At the saw-mill I made primary arrangements to have lumber sawed and dressed for supers, bottom-boards, dummies and apiary houses. I first provided for my queen, which I had protected carefully from the rain. I put her on her stand, covered the wire screen with oil cloth and opened the entrance and found the old lady the next day in excellent condition, looking for empty comb to lay in. I found material enough to make 25 supers, etc., and sent to Sanchez for help, which arrived in two days.

I found that the colonies I had transferred (four of them the hands had filled with foundation) had drawn out every foundation and built large pieces of comb on the bottom-bar of the frames which the queen used, and the bees filled the comb with nectar. I did not have lumber enough for bottoms, so I used the top-boards for bottoms and covered the colonies with palm leaves.

I had a letter of introduction to Senor Don Domingo Rosario, in Cabreras, at whose very hospitable home I spent a pleasant day. I am indebted to Don Herman Eckoff, af Mantanzas, for his hospitality and help in my difficulties. Don Herman is a physician and druggist, speaks fluently French and English and has an unusually good college education. What is mostly to my liking is that he takes an interest in apiculture.

On my home trip over the mountains we had to lift one of the horses and the mule out of a moat into which they sank to their bellies.

This has been the most eventful trip I have had on the island.

---

## Mystic Uses of Beeswax and Honey in Religious Customs of Macedonia

By Rev. Henri Tabusteau

EVERYBODY knows that the Catholic Liturgy has a formal regulation to perform the celebration of mass with candles of pure beeswax only. Similarly, for the benediction of the Holy Sacrament, six wax candles must be burning on the altar. The church, in addition, in the admirable ceremonies of Easter eve, sings twice the praise of the mother-bee, queen of the little family that gives us the sweet-smelling beeswax.

A stay of nearly two years in Macedonia has enabled me to ascertain the fact that their orthodox church is not on this matter in any manner behind its Latin sister; on the contrary, the perfumed products of the hive occupy in the Greek liturgy and customs a very honorable place. I wish to tell here, to the glory of the bees, what I have been able to see and learn over there, on this subject.

The first object that strikes the visitor, when entering an orthodox Greek church, is a sort of high, long table, a counter near the door. Upon it are spread 6 or 7 bundles of wax candles, the largest of which are of the size of a man's finger, and about 20 inches long; the smallest, of about the size of a child's finger, are hardly 6 inches long. These candles are of absolutely pure beeswax and their sweet odor scents the entire building. Each member, upon entering, buys one of these candles, according to his or her means, lights it, walks around the nave and the chapels kissing the holy icons, leaving the lighted taper before the one icon which is the more particular object of his or her worship.

There are no religious ceremonies here without the use of those wax candles. I was present once at the funeral of a little girl. Each person held a wax candle in hand and did not extinguish it until after the three prostrations and the touching homage of a last kiss on the poor angel face, in which no life but the next was shining. Here, at the funerals, the dead are always dressed in their finest clothes.

But before describing the cult of the dead, let us tell of the living, and show what place honey fills in divers ceremonies, which are celebrated at births, at the early birthdays and at weddings. I will close by telling what I saw at Christmas.

As soon as a child is born they uplift over its head both bread and salt, as symbols of the abundance with which they hope its life will be blessed. Then, to drive away disease and conjure bad luck, they fasten a clove of garlic to its little cap and place an onion under its pillow. Then a large loaf of bread, marked with three crosses and the crust of which is entirely covered with honey, is placed near the mother's bed, with a glass of wine and a glass of honey on each side of the loaf. The following morning the midwife moistens with the wine and honey the lips of the child and the breasts of the mother. As was explained to me, wine symbolizes the strength, the health which they wish to the child and the mother, and honey symbolizes a long and happy life.

The day upon which the child begins to walk alone is cause for great rejoicing in the family, and a very curious ceremony. It is upon that day that they expect the child to reveal the future avocation, and in the following extraordinary fashion: In the center of the largest room of the home, where the entire family is present, they place a large butter-cake, liberally covered with honey. Around this cake they place objects of all kinds, money, wheat, writing material, scissors, trowels, hammers, etc. The young mother then allows the child to leave her arms. The first object that he will seize with his grasping little hands will indicate the profession that he will follow some day. If, happily, he takes to the cake first, it is a sure sign that he will prosper, almost without needing to work—a very desirable thing in the Orient—until the days of the greatest old age.

Every Macedonian wedding takes the form of a real event, not only in the families of the wedded, but in the entire village. The multiple and complicated proceedings which precede, accompany and follow a wedding extend from the Wednesday of one week to Thursday of the week following. The ceremony proper always takes place on Sunday afternoon. I will describe this ceremony only from the matter in which we are interested.

On the morning of the wedding, the groom knocks at the door of the home of his affianced. A choir of young men accompany him and sing:

She has shut herself in, the blonde young girl;
What shall we offer her, so she may open the door?
We have given her a vine and grapes
So she might open to us;
We have given her a branch of quince.
She did not open the door;
But we are offering to her a betrothed;
She will surely open the door; yes, she will open it.

A choir of girls answer from within:

Knock at the door and open it, brother-in-law,
To see the young bride,
Adorned and standing ready.

The door then opens. The groom

places his foot three times in succession upon the foot of the bride, to signify that she is to submit to him; then he circles her head with a silver thread to signify that she must think of no one else. The bride's mother then offers to the young couple a mixture of wine and honey, and throws to the floor between them whatever they leave of it, saying: In as much as those drops may not be numbered, so your days of happiness."

When the crowd leaves the house for the church, the mother throws at the young couple handfuls of wheat, in sign of abundance. A brother of the groom—there is always a brother of the groom, as the families are very numerous—walks at the head of the procession, holding in his hands a red scarf. The bride is either seated upon a horse or on one of those carts which are usually drawn by slow, black oxen. During the trip, the maids of honor sing the bride's song.

At the church the ceremony consists mainly in the placing and exchanging of wreaths, the nuptial veil being extended over the couple during the entire time of benediction. The rings have already been exchanged at the time of the engagement.

At the end of the ceremony the crowd meets at the home of the young man, where the wedding banquet is held. It would take too much space to describe this.

The next morning the bride's mother calls for her daughter's undergarment, which is examined to establish the undoubted honor of the young woman. A dance is organized and the crowd sings "The Honor of the Chemise," while drinking brandy sweetened with honey. (Compare with Deuteronomy xxii, 13-20.—Translator.)

The precious garment is placed in a casket and brought to the home of the bride's parents. There is served a breakfast composed of honey and cheesecakes. A larger cake of the same kind is divided into 4 parts, for the bride, the groom and the parents of both.

After this meal the young woman accompanies her husband to the forest, or to the wood-pile, where he is expected to cut, with a single stroke, whatever piece of wood he attempts to chop. If he succeeds, it is a sign of happiness. The young woman then prepares the noon meal for themselves alone. After that meal they visit every room of their home, and in each room make a triple sprinkle of holy water. Then a great honey cake is brought, ornamented with three branches of quince, and all withdraw after having partaken of this symbol, perfumed for a sweet, and long life.

### The Cult of the Dead

As soon as the moribund dies, the oldest member of the family ties its jaws with a handkerchief and closes its mouth with beeswax. Then they place within the joined hands a small cross, made of beeswax also. They then hasten to prepare the "collybes" (Greek Kollis, round loaf), or funereal cakes, which are made of a mixture of boiled wheat, dried fruits and honey. The funerals are conducted within the day following. During the psalm-singing and the prayers, the priest swings the censer over the corpse and over the assistants. After three prostrations, the friends and relatives kiss once the face of the deceased. The coffin is closed at the arrival at the cemetery and only after the eldest of the family has untied the chin and loosened the garments of the dead, whose soul is to be liberated by their prayers. The body, when lowered into the grave, is sprinkled with libations of wine, oil and honey. This impressive ceremony, which I often witnessed, reminds me of the passage of Odyssey, where the divine Ionian songster shows Odysseus invoking the shadows while pouring into the grave, dug with his sword, libations of milk, honey and wine (Odyssey xi, 27). Achilles, also, is shown placing near the funereal bed of his friend Patroclus amphoræ or jars filled with honey and oil (Iliad xxiii, 170). Honey, which is for the living a symbol of long life, as mentioned previously, evokes towards the dead the thought of eternal life, immortality. Herod reports that the Babylonians embalmed their dead in honey (i, 198), and that the Persians covered the corpses entirely with beeswax to preserve them (i, 140).

The funereal feast is served about the still open grave. The guests divide among themselves the "collybes" and eat holy bread dipped in honey or in wine. A similar ceremony is performed the 3rd, 9th, 15th, 21st, and especialy 40th day after the funeral. The collybes will on those days be distributed at the gate of the cemetery. At the head of each tomb may be seen an earthen tube and a flat stone, often sheltered with a small arch. On this stone they light a wax candle or an oil lamp. The tube receives the libations, incense and collybes, the share of the departed. Every Saturday, for three years, they will be faithfully brought to this grave. In the third year they celebrate a second funeral. The exhumed bones are carefully washed in wine, placed in a little casket and deposited in the ossuary of the cemetery.

### Christmas Eve

The eldest of the family has previously brought from the forest a "badgnath" or Yule log. It is brought to the home with solemnity. On each side of the door, two wax candles are lighted. The master of the house and his wife throw a handful of wheat at one another and drop some on the Yule log. Then the latter is completely coated with honey. All the members of the family, after kising one another in pairs, lick the honey from the sacred log. It is then laid in the fireplace and the housekeeper goes out with the children. She soon returns bringing a little bundle of straw, walking about the room three times, while imitating the call of the mother-hen. The children follow her, answering with the imitation of the chicks, peeping, and catching blades of straw which they drop on the floor. Then all sit down and have a feast. The Yule log is not allowed to burn itself out, but a portion of it is preserved for the ensuing year.

Written at Salonica, Sept., 1918.

Translated from L'Apiculteur.

---

## The Langstroth 13-Frame or Square Hive

By C. F. Davie

A FEW observations noted in the operation of the Langstroth 13-frame hive may not be amiss at this time, when discussion is rife as to the desirability of utilizing large hive-bodies. I commenced beekeeping with the ordinary 10-frame hive, but, having realized these do not provide sufficient brood-space, I recently decided to adopt something bigger. While appreciating all that has been said for the Dadant hive, I preferred to have a style which would accommodate the same size frames already in use, and thus enable the free interchange of my drawn combs. Accordingly, last winter I made up ten large 13-framers—veritable barns. When finished I contemplated them with much satisfaction. They are 20¼ inches square and accommodate 13 frames snugly, with a nice quarter of an inch to spare on one side, to permit of easy manipulation. Fancy that great box full of bees, thought I. Fancy, also, the large entrance, running the full width of the hive, as a means of ventilation. And then, if I desire, I can give my square boxes a quarter turn and winter my bees on the warm plan. I waxed enthusiastic. With more than sufficient brood-space, according to the Dadant calculation, I ought certainly to have the minimum of swarming, and the queens would stay below without the use of excluders.

But the anticipated results failed to materialize. Far from it. As a swarming preventive, the barns were an egregious failure. As a means to keep her Ladyship out of the supers, they were equally futile. The first swarm of the year went out of one of my barns. Curious, thought I—thirteen frames below and a super of an equal number of shallows above could not possibly be filled by the end of May. And this conjecture, at least, was true. There was nothing in the super, and several outside frames below had still untouched foundation. The second swarm of the year went out of another of my barns. And it was **some** swarm. Unfortunately, I was absent on business when the event came off, but my wife says it was the largest she has seen or ever expects to see. She made heroic efforts to capture it, even cutting down a tree the swarm had settled on, but the bees went to a still more inaccessible place, camped all night, and departed the next day. Curious again, thought I. There were two supers on this hive. I opened up and found the foundation in four outside frames below untouched, but brood in the central part of the two supers.

Having now found the facts, let us apply the law, as the judges say. I stated that, according to the Dadant calculation, I had more than sufficient brood-space. This is true. But I had half of this space in the wrong place. That brood-space should undoubtedly be in the center of the hive, not branching out sideways. Her Ladyship will branch sideways for a matter of five or six Langstroth frames, after which, if not excluded, she goes up stairs in preference to leaving the center of the house. Even with an excluder, I fancy I could not get all that row of thirteen frames occupied by the bees, let alone the queen, unless, perhaps, I spread the brood every little while.

In my experience, therefore, the barns do not justify their existence, and the practicability of the Dadant hive, with deep frames to accommodate an amplitude of brood space in the center of the habitation, becomes significant. This coming winter I propose making Dadant hives for use next season, and this time next year I hope to announce the result of my operations with these hives, as a means of reducing swarming and obviating the use of excluders.

British Columbia.

(Good! But bear in mind, please, that the prevention of swarming is not **all** in large hives. There are other conditions necessary. Even then, as Dr. Miller says: Bees never do things invariably.—C. P. D.)

## Electrical Imbedding

By Will H. Gray

BY using the following method, imbedding becomes "a thing of beauty and a joy forever." The actual time taken to imbed the wires is about two seconds and the work done is perfection. The first method is for those having at their disposal electric light, either direct or alternating current, from city mains or private lighting system.

Take the cord belonging to a toaster, iron, or other similar device, and cut one strand of the twisted cord and unravel a foot each way. Then pare the ends, exposing the copper, and twist them each round a nail in the end of two short sticks which just act as handles. Now connect up your cord and toaster or other appliance, when it will be apparent that by touching the nails together you complete the electrical circuit and the appliance heats up. Now, instead of touching them together, touch the beginning and ending of your wired frame, which is, of course, resting on the imbedding-board, and the wires will immediately sink into foundation, all at the same time. If the frames or foundation are uneven or light weight a slight pressure may be necessary to bring the wire exactly to the mid rib, where it should be.

Now, if you have not got the lighting system, but have a car with a storage battery, you can do equally good work, but you will not need the toaster, as the wire itself will act as sufficient resistance. Only in this case be careful not to touch the nails together, or you will spoil your storage battery.

I have not tried it out, but I think a Ford magneto would do the same work, only it would hardly pay to keep the engine running during the operation.

Electrical imbedding with high voltages is just a matter of having the correct resistance in series with your foundation wire. Resistance can easily be made for the purpose from iron wire wound on a framework of nonconducting material.

If the diagonal system of wiring is used, the current must be applied twice; that is, at each end of the straight run, otherwise the current would turn back when it touched the other wire at the middle point.

British Columbia.

# BEEKEEPERS BY THE WAY

## Millen, of Ontario

F. ERIC MILLEN, recently from Iowa, but now of Ontario, is generally recognized as a coming man in the beekeeping field. As a graduate of the beekeeping course of the Ontario Agricultural College, under Morley Pettit, Millen was, perhaps, the first man to specialize in beekeeping during his college career and follow up this special training in charge of similar work in another institution. Soon after his graduation he was selected to take charge of the beekeeping work at the Michigan Agricultural College. His work there was just beginning to come to public attention when he resigned to take the position of assistant professor of beekeeping at the Iowa Agricultural College at Ames. At about the same time the new law creating the office of State Apiarist went into effect and Millen was selected for that position also.

There is a good deal of action at the Iowa College and it takes a live one to get any particular attention there. However, Millen soon had everybody in town talking about bees. The war was in its early stages and many new activities were started looking toward increased food production. Millen asked permission to give the girls in the domestic science department a special course in beekeeping, since many of them were from farm homes, where bees are kept. He was informed that the girls would not be interested in bees, but that he could make up a class composed of the few who could be induced to undertake the work. The class started with about half a dozen, but it grew larger every day until there were a hundred taking the beekeeping course. As the apiary was beside the trolley line, the whole town was soon talking about the bee class of college girls and the way they handled the bees. It was not long until several faculty members were attending this course also.

When Millen decided on a correspondence course, he was told that if he could get a couple of dozen students for it, the course would be worth while. He had more than three hundred taking it shortly.

Millen has that happy faculty of innoculating others with his contagious enthusiasm. Not only that, but he is thorough-going and practical. His is not the type of booming that makes everybody think they can get rich with a few bees in the attic. He gives the impression that beekeeping is a dignified calling worthy of serious attention, and makes a fellow think that he must master the thing or get out of the game.

During recent years he has maintained apiaries in Michigan and Iowa for commercial honey production. In this way he has kept in touch with the practical work while adding to his income. When it was recently reported that Millen had resigned his position in Iowa to return to Ontario as head of the department from which he graduated, there was general regret among Iowa beemen.

We happen to know that several institutions had their eye on Millen. There is also plenty of activity in his vicinity, and while the Ontario bee department has always ranked as among the best, it is confidently expected that Millen will arouse new interest in the work.

Millen of Ontario.

## Shade for Bees

IT was the late E. W. Alexander who first observed that colonies under a dense shade did not build up in spring as would those more exposed to the sun's heat. Others have found dense shade at that time detrimental to the welfare of bees only in the early and cool part of the day. Colonies, therefore, placed to the east of trees or buildings, did as well as those in the open.

Contrary to all such experience, some of our strongest colonies, producing the highest yields, were situated snugly against the west side of a building. This is but an isolated case, however, and does not prove that bees do not generally need the morning sun.

Hives with a single thickness of board for cover should, on the other hand, never sit directly in the hot sun, through the warmest part of the summer. Fortunately, such covers are gradually being replaced by the double kind, which do not warp and twist, and that have an air-space between, keeping the inner one, at all times, comfortably cool.

L. E. KERR,
Ft. Smith, Ark.

## Honey Production for Home Use

By C. T. Ohlinger

I ONCE asked an old farmer why he didn't keep bees in order to get some honey for family use. He recalled that his father killed all enthusiasm for beekeeping when he cautiously advised "My boy, if ever you want to see your money fly, just keep pigeons and bees." The inference was that neither brought any money. I'll not stop to contradict such a sweeping statement. There are farmer beekeepers who get little or nothing from their bees. It's not the fault of the bees.

In the first place, it must be remembered that not every section is adapted to honey production. In some parts of the country bees scarcely make a living, to say nothing about a surplus they might store for their owner. Then, again, the question of quality must be considered if the honey is to be sold to storekeepers or private customers. At present I am in a locality where these conditions obtain. The so-called Eastern shore of Maryland is not a clover belt, the main crops being wheat, corn and tomatoes. The forests consist of pines and oaks, very few, if any, basswoods. To go into extensive beekeeping in such a locality would, indeed, be a waste of time and money. Yet we are not without bees. There's a "sprinkling" of hives throughout the whole peninsula which is not devoid of honey-producing flora, such as locusts, wild flowers, sweet clover, etc.

Now I find, traveling up and down the State, that many farmers still cling to the old and much-decried box hive. They have the shape of a chimney, one foot square and four feet high with two cross-sticks in the middle to hold the combs. Most of them are old relics and heirlooms of days gone by, bought at public sales with the bees in them like a cat in the bag. Some are of recent construction. Not long ago I caught a farmer beekeeper **in flagranti** sawing out the lumber for one of these makeshifts. Of course, he didn't know what he was doing.

I told him that I very much preferred the old logs cut out of a bee-tree, since they were not apt to warp or show any cracks. He couldn't understand why I objected to a hive of such simple construction, since he always managed to cut a dishful of honey out of it in the fall. To convince me he opened one in which the bees were working "right smart." Of course, the bees were working from the bottom up, struggling to fill the gap between the cross-sticks and the cover made by the previous "cutting."

He had never heard about shifting the hive to another place after the swarm issued and putting the new swarm on the old stand. Getting surplus with this man was very much like being lucky.

Others again, I find, are using modern hives without a bit of foundation. The combs in them are built criss-cross and are left that way. They never have the intention of moving a frame for the sake of inspection or manipulation. The bees see to it that their brood-chamber becomes a sealed book to the farmer. Of course, a super is put on. Just when to do it is a matter of speculation. I remember one day in July, as I was bringing a load of new comb honey to market, a man who kept over a dozen hives asked me to sell him some foundation so that he might put on his supers to get the new crop. It is evident that keeping bees is equal to "seeing your money fly" when managed in such a way.

I could never understand why some farmers persist in using a comb honey super instead of a plain extracting super, half depth size, when they want honey merely for their own use. A super fitted out with open frames and foundation is entered more readily by the bees than a comb-honey super with its many little compartments. Swarming is also deferred, if not given up altogether. Thus the matter of surplus is not quite so problematical. The honey can be cut out of these frames and packed into glass jars. If it's stored away in sections there is a chance for the moths to ruin it. Besides, the honey gets an unappetizing appearance if stored in sections that are used several seasons.

Cambridge, Md.

## The Naming of Nails

By J. A. Green

THE article by Major Shallard, in the August number, and the editor's comments thereon, are interesting to me and I would like to pursue the subject a little further.

In the first place, I think our names for the sizes of nails are not distinctively United States, but something we have inherited from England. If the Australians use another system, they have gotten farther away from the mother country in this respect than we have.

There is another explanation for the origin of our way of naming nails than the one given by the editor. Both are recognized by the Standard Dictionary, but the one I shall give I consider the more reasonable of the two: When the English nail maker hammered out his nails by hand, he called the nail, a thousand of which would weigh ten pounds, a ten-pound nail, or in his dialect, a ten-pun nail. If a thousand weighed four pounds, it was a four-pun nail. Ten-pun easily became ten-punny, and that was readily changed to ten-penny, as we have it now.

Bringing home the honey. We have lost the name of the boy, as well as of the photographer who sent the picture.

I know nothing of Australian trade customs, so I must admit that Major Shallard is probably right as to the way their nails are named. Yet I cannot help wondering if he is not mistaken in some respects. In the United States the small wire nails so much used by beekeepers, as well as some of the "standard" sizes, are listed both by length and diameter. Thus I have nails that are 1¼x16 gauge. The nail that is probably most used by beekeepers is 1x18 gauge. You will find this on the package. Some lists will say that it is made of No. 18 wire. Sometimes it is called simply a 1x18. This does not mean that it is 1-18 of an inch in diameter, but that it had been made of 18-gauge wire. As a matter of fact, it is about 1-20 of an inch in diameter.

But when we come to talking about wire gauges, we come to "confusion worse confounded." The Americans have one standard of wire gauges and the English have another. In fact, the English at one time had two, and I am not sure that they are not both still in use.

Grand Junction, Colo.

## An Expensive Friend

By Dr. J. H. Merrill

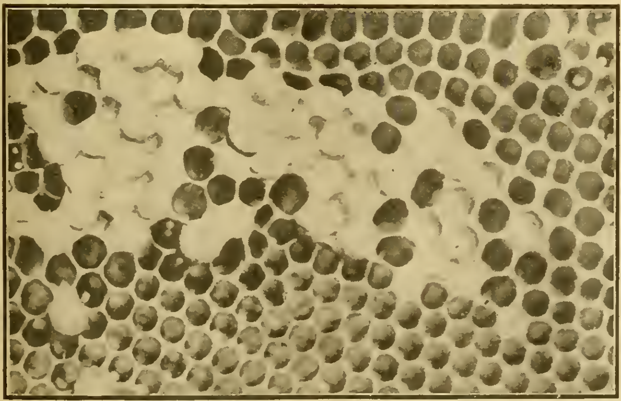
State Apiarist, Kansas State Agricultural College

DURING the last week of May and the first two weeks in June, the variegated cut-worms appeared in Kansas in such large numbers that they took upon themselves the habits of the army worm, in fact, they were commonly called army worms. They devastated a large acreage of corn and alfalfa throughout the State, doing an enormous amount of damage. The parasitic tachinid flies took advantage of this sudden abundance of food and proceeded to parasitize these worms, very heavily. By so doing they proved themselves to be a friend to the farmer. But they began to emerge from the cut-worms just as the white sweet clover was coming into bloom. It was a very favorable spring, in Kansas, for the production of nectar-yielding flowers, and all of the beekeepers over the State were looking forward to a very successful season.

After leaving the cut-worms, the tachinid flies immediately proceeded to take on the habits of bees, and spent most of their time gathering nectar. Counts were made of patches of sweet clover, over various parts of the State, in order to find out the relative proportion of the tachinid fly to bees in the sweet clover. These counts show a range in proportion from six flies to one bee up to as high as forty flies to one bee, and very often it would be noticed that a bee would come to a patch of sweet clover on which the flies were busily at work, and then, on finding the flies there, would leave almost at once, having secured no nectar. In several cases the length of time that it took a bee to gather a load of nectar was recorded, and it was found that it required twenty-three and one-half minutes for a bee to secure enough nectar to start back to its hive. The number of heads of white clover which each bee would visit before it had gathered a sufficient amount varied, but in some instances they visited as high as 110 blossoms before completing their load. The result of this has been that, even though the beekeepers had strong colonies, the presence of the fly so reduced the supply of nectar that the most the bees could do was to secure enough to continue brood-rearing. Practically no honey, though, was stored in the supers. The bees were very reluctant to draw out the combs. Early in July the drones were driven from the hives, seriously interfering with queen-rearing. When the flies were caught and examined, their stomachs were found to be filled with nectar.

While this fly has proved to me a great blessing in ridding the fields of the cut-worms, it has very seriously affected the amount of honey that would be stored from the summer plants in Kansas.

Manhattan, Kans.



Stretched cells filled with drone brood as a result of sagging combs. This emphasizes the importance of careful wiring of frames when putting in foundation.

## Hares and Bees

By A. F. Bonney

WHILE in Fort Dodge recently, after attending a meeting of beekeepers in Ames, I called on an old-time friend, Mr. E. E. Townsend, who, as most Iowans know, is a progressive and enthusiastic beekeeper, and I found him with the Belgian hare fever well developed, and he did not do a thing but inoculate me.

Seeing him at his home in the suburbs of Fort Dodge with his rabbits, chickens and bees gave me an insight into what an energetic man can accomplish, if his heart is in his work. Mr. Townsend has, I think, between 200 and 300 colonies of bees, great numbers of prize-winning Plymouth Rock Chickens, and now the hares. Incidentally, he has one of the nicest wives a man ever raised and seems to appreciate the fact. These good people are in their early old age, and filled with ambition and vigor.

But about hares: What Mr. Townsend showed me set my alleged brain to working, namely a big brooder-house of baby Plymouth Rocks which would average about 12 ounces in weight. Next some fine Belgian hares which weighed a matter of 4 pounds each. The chicks were hatched the same day the hares were born, but it had cost a cent an ounce to raise the chickens, and about a cent a pound to raise the hares. A ratio of 16 to 1, "without asking the consent of any other nation on earth."

Mrs. Townsend, when she learned that I know how to cook, said:

"It is largely in the cooking, Doctor," meaning the palatability of the hare meat. "I," she went on, "soak the meat over night in salty water, then put it on to cook in water containing a piece of salt pork; let this water boil away, and finish by frying in the pork grease." I ate a meal with my friends and can testify that Mrs. Townsend also knows how to cook.

I intend to begin this summer with hares, as Mr. Townsend has offered to let me have a pair of registered animals at a fair price, and I am only waiting until he has them ready to ship, and as others besides myself may want to commence with them, I will state that in my opinion they will go well with bees. They do not require 5 per cent of the time chickens do, take vastly less room, do not scratch up the garden, are cleanly and prolific and the meat, if properly cooked, is as good as that of chickens. There is a good demand for them, which can be increased by advertising, and this can be done on the same slip your honey is told about. As to feed, a bale of hay and a bushel of oats, with now and then a carrot or some cabbage leaves will keep a hare all winter, while in the summer one can cut grass and clover for them. Compare this with feeding a chicken.

Year-old chickens are worth now, at retail, 25 to 40 cents a pound. A person could sell hares at 10 cents a pound and make more money than the farmer does on his chickens.

A box 36 to 40 inches square and 24 inches deep, with a light cover, of shingles or tar paper, a door about 18 inches square, covered with strong screen wire 4 to 6 meshes to the inch, and an inner box 16 inches square for the hare to stay in, are all that is needed, except that this box should be set two feet or more from the ground. There are books published which give detailed information regarding breeding, color of prize stock, markets, etc., which can be purchased at nominal prices, and these may be consulted. This article is not intended to be scientific, but to serve as a hint.

Buck Grove, Iowa.

# DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to
Dr. C. C. Miller, Marengo, Ill.
He does not answer beekeeping questions by mail.

## Queens

1. What is the average capacity of all your Italian queens, as near as you can tell offhand, expressed in number of frames of brood in height of season?

2. What should the brood-frame capacity of a breeding queen be? Of course this implies that she has all other desirable traits.

3. How soon is it *possible* for a virgin to fly after hatching? That is, if she is not the first one to hatch at swarming time.

4. In your experience, what was the age of the youngest virgin that ever led off the first, secondary or afterswarm in a given colony?

MICHIGAN.

Answers.—1. Seven or eight frames, the brood-chamber containing only eight frames during the harvest. Earlier they occupy more.

2. Maybe 15 frames.

3. If she is not the first one she is likely to be able to fly the minute she gets out of the cell. Indeed, she may he able to fly before that, since any virgin after the first is likely to be held in her cell for some time.

4. I don't know. My experience in that regard is exceedingly limited, having scarcely ever had an afterswarm.

## Shade Boards

Could you give me some idea of how to make a hive-stand wit' a cover to keep off the rays of the sun?

WISCONSIN.

Answer.—You can shade your bees by a cover made on the shed-roof plan. Take a piece of stuff long enough to reach from the east to the west side of the hive-cover—this piece to rest on the hive-cover at the north side—and on this piece nail the ends of shingles or cheap boards such as you may obtain from broken-up boxes. It will be better if the shingles or thin boards project at the south side so as partly to shade the south side of the hive. Put a stone on top to prevent the wind from blowing it away. Or, you can do another way if you have some long grass at your disposal. Mow the grass and put a small armful on the top of the hive, weighing it down with one or two sticks of stovewood.

## Wintering—Feeding

1. I am trying to find out the best way to winter bees on their summer stands. I read in a journal, to place a hive on the bottom-board, filled with empty frames, an inner cover on top, with 2 holes bored in front for ventilation, then the hive of bees set on that, with a tray on top filled with dry leaves. My idea is to drive four stakes at the corners to make a space of about 5 inches all around and fill it with dry leaves, holding this down with paper, tacked, but leaving the entrance open in front; or would you winter in one hive with tar paper around the same?

2. Is it best to feed in open, or feed in the hive, or in what manner? Will it do to feed them all they will take?

NEBRASKA.

Answers.—1. The plan you outline ought to bring good results, provided outdoor wintering in your region is best.

2. Your bee books should give you full instruction about feeding and this department is not to take the place of books, but to supplement them. Feeding in the open is a little more like the natural gathering from the field, and on that account is to be preferred if there are no bees from other apiaries to share with your own bees. It may be all right to feed the bees all they will take, and it may not. Sometimes they will continue taking feed until the combs are so full that there will not be room for the queen the following spring. But there isn't much danger of that unless more than 40 pounds of honey and syrup are in the hive. It will be better if the bees have stored enough honey so no sugar need be fed. If you have a good cellar it may be that your bees would do better in it than outdoors.

## Laying Workers

Can you explain the presence of laying workers in the super of a queenright colony? On August 6 I killed the old queen of one of my colonies, and at the same time introduced a new queen in a mailing cage. August 17, I inspected the hive and could not find the new queen. There were no eggs nor young brood, but there was one ripe queen-cell. I then inspected the super to see if the queen could have squeezed through the excluder. I found drone-brood at all stages in both drone and worker cells. Also many dwarfed drones, which indicated that the laying workers were present before the old queen was disposed of.

I suppose the laying workers were the cause of the bees not accepting the new queen. There was no sign of laying workers in the brood-chamber.

DISTRICT COLUMBIA.

Answer.—This seems exceptional beyond precedent, and I haven't the remotest idea why it happened.

## Caging Queens—Equalizing Weaklings

I save all possible bees to rear brood for the clover flow, then double up all the weaker ones with stronger ones, then remove all queens and form nuclei. This way there will be no new larvæ to eat up the surplus until they rear a new queen, which will take them safely beyond the honey-flow. I notice some suggest caging the old queen for this same purpose, until the honey-flow is over.

1. Would the bees work as well while forming a new queen as if the old queen was caged in the same hive with them?

2. When you double up a weak swarm with another in the same apiary, will not the bees go back to their old stand?

3. Do you, in all cases, prefer "leaving it to the bees"?

4. Which covering for frames do you consider the best, burlap, ducking or oil cloth?

5. How about equalizing weaker swarms and nuclei by giving frames of brood from stronger ones—is it advisable?

OHIO.

Answers.—1. My guess would be that the bees would work as well while rearing a new queen as they would with an old queen caged.

2. Yes, with no precautions the field bees are apt to return to their old location. This can be partly or wholly prevented by using the newspaper plan for uniting. Put a sheet of common newspaper over one hive, and over this set the other hive. The bees in the upper hive cannot get out until a passage way is gnawed in the paper, and by that time they are reconciled to remain in the new place.

3. By no means would I always leave everything to the bees. Indeed success depends chiefly on knowing just what to leave to the bees, and how to interfere with their notions. To leave everything to the bees would spell practical failure, for much of their strength would be dissipated in swarming instead of gathering

4. Hard to say; but for many years I have preferred to have neither, merely having an air-space between the top-bars and the board cover.

5. It may be advisable, provided all can be brought up to good strength for winter.

## Pasturage

1. I am a beginner and have ten colonies of Italian bees that will go In winter quarters strong. I live in a little town and am the only man who keeps bees here. I would like to have about one hundred colonies or more, and am quite sure there is not enough nectar right here to make beekeeping a paying proposition, but about one and a half miles from here there begins a swamp full of vines, lilies and other honey-producing plants. Do you think my bees would go to that swamp, and that it would be a paying proposition to have one hundred colonies here?

2. Is the water lily a good honey-producing plant?

LOUISIANA.

Answers.—1. You've picked out one of the hardest questions in beekeeping. In the first place, I'm hardly ready to take your word for it that 100 colonies could not find enough to do at your home, without going as far as a mile and a half away, although the probability is that you are right. In the second place, it's such a hard thing to find out that you will probably never know to a certainty if you keep bees for a hundred years. One year you may get a good crop with 100 colonies, and yet you cannot be certain whether you would have had more surplus with 90 or 110 colonies. Seasons change so that 100 colonies might do well one year, and 50 starve the next year. So no one can tell what number on the average would be profitable. But I should feel safe in saying that your bees will work almost or quite as well on pasturage a mile and a half away as on the same field half a mile away, and it is quite possible that 100 would be none too many in your home apiary.

2. I don't know. It is very fragrant, but I've never heard of honey in quantity being secured from it.

## Foulbrood—Queens—Moths

1. What is foulbrood?

2. What is meant by a virgin queen?

3. In what way are queens changed, and what effect does it have on the workers?

4. Can comb be used more than one year in succession if thoroughly cleaned?

5. In what way can moths be avoided? In what way may they be prevented?

WISCONSIN.

Answers.—1. Foulbrood is a germ disease that attacks bees in the larval state. If it slips in on you without your knowing what it is or how to handle it—good night. Better get a good bee-book that tells about it, or write to Dr. E. F. Phillips, U. S. Department of Agriculture, Washington, D. C., and ask for free literature about foulbrood and its treatment.

2. A young queen that has not yet mated with a drone.

3. The queen present in a colony may be removed or killed, and another introduced through an introducing cage. The effect on

the workers will be an utter change in something like nine weeks, the progeny of the old queen dying off in that time, if it is in the working season, and all the workers in the hive being the progeny of the new queen.

4. Yes, a comb in the brood-chamber or in an extracting super may be used 20 years or more without cleaning, except that extracting combs should have all the honey cleaned out of them each fall by the bees.

5. I don't know how you can entirely avoid having any moths except by keeping no bees. You can prevent their doing any great harm by keeping colonies strong and of Italian stock.

### Bee Tree—Hiving Swarms

1. If I find a bee tree in the woods, do I have to get permission from the owner to cut it down?

2. A neighbor near us had a swarm of bees come out this year. He hived them five or six times but they came out and lit on a tree; so he gave them to a man who was working there who hived them and they stayed. What was the reason they wouldn't stay in the first hive?

3. What is the most profitable, comb or extracted honey? IOWA.

Answers.—1. Yes.

2. No telling for certain, but the probability is that it was too hot for the bees. A newly-hived swarm should be shaded by some means and have abundant ventilation, perhaps by raising the cover half an inch or more and raising the hive on blocks.

3. In some localities one, and in some localities the other. Even in the same locality it is not always alike. Last year extracted was more profitable in many a locality where comb honey had previously paid better.

### Peculiar Behavior of Bees

I have 10 colonies and two of them seem to have a funny habit. They are this year's swarms and have their hive-body full of honey and brood. The supers have sections with full sheets of foundation in them. There are lots of bees in the supers, but they don't seem to work very fast. I am sure there is plenty of honey in the fields. What I can't understand is why quite a few bees sit around on the platform, or alighting board in the daytime, and act as they were trying to cut, or bite the paint or wood. They will lean as far forward as they can and then back without going off their hind feet. All the while they will have their two front feet going back and forth. What do they think they are doing? MICHIGAN.

Answer.—The probability is that your bees are all right. If the brood-chamber is full of brood and honey they certainly have been gathering, and if later they have been doing little in supers it may be there is little in the field for them to do. The fact that flowers are in bloom is not proof that nectar is plentiful, for sometimes the bloom will be plentiful yet yielding no nectar. Their funny actions in moving back and forth at the entrance is called "raking." I don't know why they do it, and never saw any satisfactory explanation for it. But if you are observing you will see it every year at almost any hive.

### Transferring—Location

1. I have ten hives of bees; five are in old-fashioned home-made hives. Two of the five have movable frames. The other five are in new hives in which full sheets of foundation were used. I would like to get the bees out of these old hives and by next fall increase to 20. Of course I want to get all the honey I can. I have no comb built out but would use foundation. I don't like to transfer by cutting the combs out of the old frames and fitting them in the new. I would make the increase artificially and would buy laying queens.

2. In "Forty Years Among the Bees" you say that if you were starting over again you would hunt some time to find a place where they had two flows—summer and fall flows. If a young man is intending to make beekeeping his sole occupation, would you advise leaving Wisconsin and hunting for a better place? The last two years have been very poor here in Southern Wisconsin.

Answers.—1. As you want to avoid patching combs and as the swarming season is now past, perhaps your best way will be to wait till next year. Then, when a colony swarms, hive it in a movable-comb hive, setting it on the old stand with the old hive close beside it. A week later move the old hive to a new stand. Two weks later still, or three weeks after swarming, there should be in the old hive only a little quite young brood, when you can chop up the old hive, melt up the combs, and brush the bees into the other hive, or else brush them onto frames of foundation in a new hive.

2. If you are in an average Wisconsin location it is somewhat doubtful whether it would be advisable to leave the State. At any rate, better not make any move until you have personally visited the new location, whether it be five miles away or a thousand, and are thoroughly satisfied the move will be advantageous. Some have left Wisconsin for what they supposed a better location, and then have gone back and settled contended in the old home.

### Profit From Bees

1. You say that $5 profit is all that can be made out of a hive of bees, and 100 colonies is all one man could keep, so it seems that one could only make $500 a year, with chance for a failure in a bad season. I thought one might be able to keep 600 colonies and have about $10 on a hive. I thought of taking up beekeeping as a business, but if such as you say I want nothing to do with it.

2. What hours of the day do you work with your bees?

3. What was the amount of the Dadants' crop for 1918?

4. What was your highest average crop and your lowest, per colony?

5. Do you think beekeeping would pay for a man with a large family, when food prices are now so high? ILLINOIS.

Answers.—1. I have no recollection of having made such an unqualified statement, and if you'll give the place where I made it I'll be ready to reply.

2. If only a little is to be done, the middle of the forenoon is a good time; but when there is enough to do I work from daylight till dark or after dark.

3. The Dadant crop was short in 1918.

4. My highest average was an apiary of 72 colonies; 266 sections per colony (244 pounds.) My lowest was years ago, when the yield was an utter failure and I had to feed for winter.

5. Men have succeeded, and probably will again succeed, in making enough from bees to take care of a large family. To be sure, everything is high now, but so is honey. The man, however, who makes a success at beekeeping is not so likely to be the man who says he will have nothing to do with it unless assured a certain amount, as the man who cannot be pried away from his bees even if he thinks he will keep them at a loss. The successful beekeeper is the one whose whole soul is in the business.

(There are several beekeepers who made as much as $20,000 in 1918.—F. C. P.)

### Deserting Bees

1. The latter part of July I noticed nearly all the bees of one hive were clustered on the outside, and there was honey dripping out, so I raised the top a little to give more air. A few days later I investigated and found the hive deserted. The super was nearly filled with honey and there was ample stores below, but none of it capped. The honey had a slightly sour smell, was thin and foamy. Each cell was overflowing with this foam like a can of fruit that had spoiled. They had an abundance of sealed brood, but no eggs nor larvæ, and the moths had made considerable progress in the brood-nest. This was my best swarm of bees; it was extra strong. Now I would be glad if you would tell me what was the trouble, and why did a strong swarm of bees let the moths come in?

2. Are the bees clustered on the outside of the hive working bees or are they young bees?

3. Do bees sleep? TEXAS.

Answers.—1. I don't know what the trouble was, but I suspect that one part of the trouble was in the character of the honey. I have read of cases in which the honey worked as yours did, presumably because of the honey from certain plants or decayed fruits; out I don't know what the plants were. Perhaps another trouble was queenlessness, the moths coming in after the colony had dwindled away.

2. They may be of any age, older bees predominating.

3. I have read that they do.

### Cellar Wintering

1. How large a space is used over the frames when wintering in the cellar?

2. What is used to keep the bees in the hive while they are being put in the cellar?

3. When is the best time to put them in?

4. Would a super filled with leaves on a hive in the cellar make them restless? If so, why? WISCONSIN.

Answers.—1. Probably not all the same. In my own hives the space between top-bars and cover is the same as on the summer stands—about one-quarter of an inch.

2. Nothing. The bees are supposed to be so quiet and so quietly handled that they do not come out of the hives to any extent. If, however, it is desired to fasten them in the hive, a large cloth, dripping wet, may close the entrance.

3. If you can guess nearly enough as to what the weather will be, take them in the next day after their last flight. In Wisconsin that is likely to be in December, or very late in November.

4. It would not be likely to make them restless.

### Black Drones

I have an extra good colony of bees. Workers are all bright, evenly-marked Italians, not a black bee in the hive, *but*—what I want is advice. Some of the drones are as black as coal. Would you advise breeding from this queen? It is about the best colony I have in a yard of forty. I would like to rear some young queens from it if it was not for those black drones. TEXAS.

Answer.—Don't worry about those drones. Either drones or queens of Italians may be very dark; but if the workers are all right they are counted pure.

### New York Field Meet

Nearly 750 New York beekeepers gathered at the farm apiary of Deroy Taylor, Newark, August 1, where they listened to nationally known speakers and witnessed demonstrations in handling foulbrood. Prices for honey were recommended by a State committee headed by S. D. House. Speakers were: O. L. Hershiser, Kennith Hawkins, G. C. Porter, State Marketing Bureau, E. R. Root and George H. Ray. Mr. Hershiser was chairman, Mr. Hawkins spoke on fall management, Mr. Root on California disease conditions, and Mr. Ray on his extension work in the State. Co-operative marketing of honey was considered by members after Mr. Porter's talk. A picnic luncheon was a feature of the day. A winter meeting of the Association is to be held later.

# MISCELLANEOUS NEWS ITEMS

### New Jersey Beekeeping

The "Proceedings of the New Jersey Beekeepers' Association" for 1918 and 1919 is before us. It would be difficult to put more useful and interesting information in 40 pages than there is in this neat pamphlet, which does not bear the name of the man who compiled its contents or looked after the execution of the work. It contains about 20 addresses, all, or nearly all, by competent men who have something to say. It can probably be secured by addressing E. G. Carr, New Egypt, N. J.

### A Good Report for Caucasian and Carniolan Bees

The honey crop of this section is very short and of poor quality. There has been more disease among bees than usual, too.

Am receiving $6 for 24-pound case of honey and could get more if I asked it.

Extracted honey is selling for 25 cents per pound.

The largest crops of comb honey are from the beekeepers that had the Caucasian and Carniolan bees, while the ones having Italians and hybrids are reporting small crops.

A good fall flow is expected.

W. W. LANTIS,
Perry, Mich.

### Bee Laws of Florida

The Bee Disease Act, approved June 9, 1919, vests in the State Plant Board of Florida the authority to enforce the law and also to make such rules and regulations having the force and effect of law as may be necessary for carrying out the provisions of the act itself.

Among other things, the new law prohibits the shipment into Florida of honeybees unless in combless packages unless they are accompanied by an official certificate of inspection of the State Apiary Inspector or State Entomologist of the State or country from which shipped. This provision of the law will be rigidly enforced, as the Plant Board has a very effective quarantine system and has quarantine inspectors so located that practically every express, freight and water shipment entering Florida comes under the eye of one or more inspectors. It is therefore practically an impossibility for bees to be shipped into this State without a certificate of inspection attached without their being detected by our inspector. There have been similar laws in other States, and sometimes the beekeepers have not taken them seriously. However, Florida is comparatively free from infectious diseases of bees, and the present law is going to be enforced to the letter. It is the desire of the State Plant Board of Florida to co-operate with beekeepers everywhere and at all times for everything looking to the betterment of the beekeeping industry. However, the doors of Florida are no longer wide open for the entry of diseased bees from Northern States, and beekeepers who undertake to ship their bees into Florida without a certificate of inspection attached will soon find that the law is being enforced.

WILMON NEWELL,
Plant Commisioner.

### Maryland State Beekeepers' Association

A very successful field meeting of the Maryland State Beekeepers' Association was held at the home and apiary of Mr. Walter E. Atkinson, of Glyndon, Md., July 26. Forty-five members were in attendance. The meeting was addressed by Mr. L. H. Vanwormer, of College Park, Md.; Mr. Sam Cushman, of Baltimore, Md., formerly a Rhode Island beekeeper; President, Dr. J. R. Abercrombie, of Baltimore, Md., and by County Agent J. F. Hudson, of Baltimore County. Those present had the opportunity of seeing an apiary of forty-five colonies kept in double-walled hives, and observing Mr. Atkinson's methods of producing both comb and extracted honey, as well as the complete and extensive honey-house and appliances. Definite steps were taken towards the co-operative buying of bee supplies. The Association voted to purchase its supplies co-operatively, and the purchase of approximately $2,000 worth of supplies was secured at the meeting.

In addition to the business part of the session, Mrs. Atkinson furnished most acceptable and delightful refreshments at the close of the field meeting. ERNEST N. CORY,
Sec.-Treas.

### Annual Meeting

The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in Memorial Hall, in Rockford, Ill., on Tuesday, October 21, 1919. All interested in bees are invited to attend. B. KENNEDY, Sec.

### Mississippi Bees Buzzing

County Agents of Mississippi to the number of 250 gathered at the Agricultural College in annual meeting, pledged themselves to boost beekeeping, after hearing Kennith Hawkins, of the G. B. Lewis Company explain the advantages of beekeeping in boll weevil districts. R. L. Wilson, of the Extension Division of the State University, also talked to the agents and a demonstration exhibit of bee supplies was shown at the meeting. A number of bee clubs have been formed in the State and several County Agents are already aiding beekeepers in marketing co-operatively. Ten counties will have a club bee exhibit at fairs this fall.

### East Tennessee Meet

The first meeting of the newly organized East Tennessee Beekeepers' Association was held July 29 at the apiary of Curd Walker, Jellico. The attendance was excellent and the weather ideal, which permitted demonstrations in transferring, queen-rearing and extracting, which are destined to bring about great results. In the afternoon the program was devoted to a round table of questions and answers, led by the President of the Association, Prof. G. M. Bentley, Entomologist, University of Tennessee, Knoxville. Another field meet is to be held this fall.

### Cayuga County Beekeepers Meet

The Cayuga County Beekeepers' Society held a basket picnic at the home of Mr. and Mrs. Geo. L. Ferris, of Five Corners, N. Y., on Tuesday, August 26, 1919. Between 60 and 70 beekeepers attended the picnic, which was made interesting by the presence of Prof. Rea, of the New York State College of Agriculture, Ithaca, N. Y., and Mr. C. E. Wetherby, Manager Cayuga County Farm Bureau, the former speaking principally upon brood diseases and their treatment, the latter dwelling mainly upon formulating plans for county extension work for the coming year. A pleasant time was enjoyed by all.

F. D. LAMKIN, Sec.

### High Priced Honey

When Detective Britton was killed in the performance of his duty at Sioux City, Iowa, recently, the Tribune started a subscription for his family. Dr. Bonney sent a gallon can of honey, which was sold at auction for $150 to swell the fund. It seems that the purchaser donated the honey to the Boys and Girls Home, so that, as Manager Kelly of the Tribune says, "Honey rarely ever sold so high, nor served so many people."

### Advance of Prices

O. L. Hershiser called attention to the fact at the New York field meeting, that bee supplies have not advanced as much as other goods. Some beekeepers are inclined to think that bee supplies have ad-advanced unreasonably in price and more in proportion than most other articles. The following comparison of other articles, with the per cent of increase based on the prices of each in 1913 and in 1919, are interesting: Wheat, 166 per cent; hogs, 123 per cent; sugar, 107 per cent; coal, 82 per cent; cotton yarns, 81 per cent; leather, 74 per cent; petroleum, 63 per cent; forest products (including beehives), 49 per cent; illuminating oil, 47 per cent; coffee, Rio, 44 per cent; lead, pig, 19 per cent. These figures are accurate and authoritative, having been furnished the parties interested by the Federal Reserve Board under date of May 1, 1919. K. H.

### Mr. Kindig's Work

The "Beekeepers' Letters" by B. F. Kindig, published by the Department of Entomology of the Michigan Agricultural College, are worthy of commendation. We have before us No. 7, published in August. It is a 5-page letter and full of good things. Mr. Kindig is a worker. Beekeepers of Michigan should secure all that he writes.

### Bartholomew to Florida

C. E. Bartholomew, formerly of the Iowa Agricultural College, and later a member of the field force of the Bureau of Entomology, has been appointed assistant to the Plant Commissioner of Florida, in Bee Disease Control, with headquarters at Gainsville.

### New Law in Wisconsin

Wisconsin has a new law for disease control. One of the provisions prohibits the sale or removel of bees or equipment without a permit from the Inspector of Apiaries. It thus becomes impossible for Wisconsin beekeepers, even though no disease is present, to ship any old combs or used equipment without such permit. We would caution beekeepers to comply with the law and thus avoid possible trouble. A strict interpretation of the law would prevent the beekeeper from moving an apiary from one location to another without first communicating with the inspector. Wisconsin beekeepers will do well to write to the State Entomologist at Madison and get his interpretation of the law on this point.

### Pasting Labels on Tin

A good way is by the use of Turlington's Balsam, otherwise tincture of benzoin compound. Daub tin to be covered with label with a little of the tincture, allow it to dry, and label will stick to it ever after. The writer used it for a good many years and it worked.

NAHMAN ROSENSWEET,
Arden, Dela.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted for three cents per word, with no discounts. No classified advertisement accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

### BEES AND QUEENS

FINEST THREE-BANDED Italian queens for $1.25, 6 for $7. J. W. Romberger, Apiarist, 3112 Locust St., St. Joseph, Mo.

FOR SALE—120 colonies of golden and 3-band Italian bees, complete queen-rearing and mating outfit; enough customers for the output of three hundred hive apiary; good honey country; good location. Price, terms and details a matter of correspondence. Address, J. W., care American Bee Journal.

THE AMERICAN BEE JOURNAL is prepared to furnish printing for beekeepers. High quality, prompt service and satisfaction. Our shop is in charge of a man who specializes in printing for the honey producer. Send for our catalog of honey labels, stationery, etc. American Bee Journal, Hamilton, Ill.

FOR SALE—200 colonies of bees, all in first-class condition for winter, with ample stores, in new Woodman Protection hives; no disease; must be sold by November 1. Reason for selling, age and poor health. Write for particulars.
Bell E. Berryman,
Central City, Merrick Co., Neb.

QUEENS AND BEES—This fall is proper time to replace all queens 2 years old, as well as the failing ones. Circular free. See large add elsewhere.
Nueces County Apiaries,
E. B. Ault, Prop., Calallen, Texas.

FOR SALE—Italian queens, from best disease-resisting stock, mailed as soon as hatched. Directions for introducing with every order. Price, April to October, in large or small lots, 60c each. James McKee, Riverside, Calif.

FOR SALE—100 colonies of bees, most all in new hives with Hoffman frames. Plenty of stores. Address
James Johnson,
Box 265, Pocahontas, Ark.

FOR SALE—Leather colored Italian queens, tested, June 1, $1.60; untested, $1.25; $13 a dozen.
A. W. Yates,
16 Chapman St., Hartford, Conn.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, $1.26; 6, $6.60; 12, $11.50; 60, $40; 100, $75.
H. G. Dunn,
The Willows, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2.
C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.60; 60, $40; 100, $75.
Garden City Apiaries,
San Jose, Calif.

LEATHER and all dark colored Italian queens, when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock.
C. W Phelps & Son,
No. 3 Wilcox St. Binghamton, N. Y.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Three-banded Italian queens; untested queen $1, six, $5.60; twelve, $10. Tested queens $2 each.
Robert B. Spicer, Wharton, N. J.

FOR SALE—Golden queens second to none, for honey gathering and gentleness are unsurpassed; untested $2, tested $5 to $10.
E. V. Marston, Roxbury, Va.

FOR SALE—J. B Brockwell's golden queens, untested $12 per doz., $7 for 6, $1.50 each; 3-frame nuclei $8, with queen. Tested queens $3 each.
J. B. Brockwell, Barnetts, Va.

"SHE SUITS ME" Italian queens, $1.15 each, from May 15 to October 15; 10 or more, $1 each.
Allen Latham, Norwichtown, Conn.

FOR SALE—Baby swarms, three frames and queen, $5.
J. A. Dougherty,
Box 66, California, Hamilton Co., Ohio.

FOR SALE—Italian bees and queens (the kind that fill from 2 to 6 supers). Bees, $12 a colony; queens, $2 each, 6 for $11. Queens go by mail, bees by express. Order direct from this ad.
Miss Lulu Goodwin,
Mankato, Minn.

### HONEY AND BEESWAX

FOR SALE—Choice clover and buckwheat honey in 60-lb. cans, 2 in case; also 2 160-lb. kegs. Clover honey, 25c; 20c for buckwheat, f. o. b., cash with order. Large sample, 15c to apply on order.
Edw. A. Reddout, Lysander, N. Y.

FOR SALE—Extracted clover and buckwheat honey. Let us quote you.
The Forest Honey Co.,
2323 S. Woodstock St., Philadelphia, Pa.

WANTED—White clover or light extracted honey. Send sample; state how honey is put up and lowest cash price delivered at Monroe; also buy beeswax.
E. B. Rosa, Monroe, Wis.

WANTED—Comb and extracted honey; send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter. D. A. Davis,
216 Greenwood, Birmingham, Mich.

WE BUY HONEY AND BEESWAX—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section and sections to a case. Extracted honey, quantity, quality, how packed, and send samples. Chas. Israel Bros. Co.,
486 Canal St., New York, N. Y.

FOR SALE—6,000 pounds clover extracted honey, new crop, two 60-lb. cans to case, 25c per pound.
J. P. Goodwin,
South Sioux City, Neb.

WANTED—Honey, in light and amber grades. Send sample, stating quantity, how put up, and lowest cash price delivered in Spring Valley. Ed. Swenson, Spring Valley, Minn.

FOR SALE—15,000 pounds of fine clover and basswood honey. The best offer takes it if satisfactory. Chester E. Keister, Clarno, Wis.

FOR SALE—New crop clover extracted honey, two 60-pound cans to case, 25c per pound.
H. G. Quirin, Bellevue, Ohio.

WANTED—Comb, extracted honey and beeswax.
R. A. Burnett & Co.,
6A12t 173 S. Water St. Chicago, Ill.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

### FOR SALE

GOLDEN DAWN APIARIES for sale, with or without location; 140 colonies; 95 per cent up-to-date hives, painted 2 and 3 times. Combs drawn on full sheets foundation and wired; 8 and 10-frame. Also quantity drawn comb, about 100 extra 10-frame hives with full sheets foundation wired (new). Some shallow extracting supers with comb and foundation (also new), and 360 section supers, mostly new. A good, clean lot for someone who can use it. Going to the coast and want to dispose of the above in the next thirty days.
Golden Dawn Apiaries, Yankton, S. D.

FOR SALE—Ten 10-frame Protection hives, complete, each $3; 10 empty standard hives, each $1; 30 plain-section supers complete, each $1.
M. Ullmann,
Box 395, Highland Park, Ill.

FOR SALE—200 new 10-frame cross style, reversible bottom-boards at 50 cents each; 200 new flat reversible covers at 60 cents each; 5,000 all-wood extracting frames at $5 per 100; 100 new Alexander feeders at 20 cents each; 150 Boardman feeders without cap or jar, at 12 cents each. All above goods are factory made and have never been used. I also have some 8 and 10-frame hives complete which space does not permit to mention here. Write
M. E. Eggers, Eau Claire, Wis.

FOR SALE—My 5-acre piece of land, with modern 8-room house, good barn, chicken coop, bee house and woodshed; all in good condition. Reason for selling, going on a farm. Address Theo. L. Thompson,
Spring Valley, Wis., Rt. 4, Box 7a.

BLACK SIBERIAN HARE—World's greatest rabbit for fur and meat. Write for information.
Siberian Fur Farm, Hamilton, Canada.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, $1.
American Bee Journal,
Hamilton, Ill.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—Blue vine seed, or climbing milkweed (*Genolubus Loevis*), 6 pods containing innumerable seed mailed to any address upon receipt of $1.
S. H. Burton, Washington, Ind.

FOR SALE—8 acres land, 300 colonies bees; land in high state of cultivation, growing second crop now; price per acre, $200. Apiary in three yards; production highest average in 10 years, 96 lbs. extracted honey, lowest 23 lbs, per colony.
S. Mason, Hatch, N. M.

FOR SALE OR TRADE—Model 10 Royal standard typewriter, visible; like new; cash $50. Cost $100. E. A. Harris, Albany, Ala.

## WANTED

WANTED—Bees in Jumbo hives; also Jumbo frames with drawn combs. E. A. Newman,
4205 Eighth St., Washington, D. C.

WANTED—Comb and extracted honey, light and amber and clover grades.
Robert Gilkinson,
1339 Dewey Ave., Rochester, N. Y.

WANTED—Man for comb-honey production; 12 months' work. State wages expected and experience.
Sunnyside Apiaries,
Fromberg, Mont.

WANTED — Position with bee supply manufacturer or southern or California bee specialist, by technical graduate of Toronto University, 29 years of age, married, 2 years' experience in practical beekeeping and the manufacture of beekeepers' supplies. Address, care of American Bee Journal.

WANTED—Cowan honey extractor. For sale —Winchester shotgun, new, 16-gauge.
James Wheeler, Maroa, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—I have a fine location in California and want a man to associate himself with me in the beekeeping business. I have the stock of bees and equipment here in Arizona; wish to ship all to a certain point in California this fall; have an attractive proposition to offer the right man that can invest in half interest in what I have. Tell your story in first letter.
J. B. Douglas, Box 1085, Tucson, Ariz.

## SUPPLIES

FOR SALE—Cowan rapid, reversible extractor, practically new, $23.
L. Clark, Winona, Minn.

FOR SALE—Novice 2-frame extractor, used only one year; like new; in original crate. Price, $15.
Merton Church,
Highland Park, Ill.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati; terms cash with order.
C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

MY FEEDER—Make 'em yourself. I tell you how. Won't rust. Sample and tool postpaid, 24c. Dr. Bonney, Buck Grove, Ia.

FOR SALE—Beehives and supers. Address
Thos. Cordner, Rt. 7, Sparta, Wis.

SPECIAL—Best No. 1 Sections, per crate of 500, $3.50; other goods in proportion. Price list free. H. S. Duby & Son, St. Anne, Ill.

## MISCELLANEOUS

MR. BEEKEEPER—If you want a good queen-rearing and honey location in Texas, write me. Farmer Shaw, Lovelady, Texas.

FOR SALE—California Wonder Corn for seed. The greatest producing corn known. The yield is twice to three times that of ordinary corn. Order now for November and December delivery. Price, 10 lbs., $3.50.
James McKee, Riverside, Calif.

I WANT to trade honey for a good-toned guitar. Must be in good order.
Dr. A. F. Bonney, Buck Grove, Iowa.

THE DOMESTIC BEEKEEPER is published "wholly in the interest of the honey producer." It will help you to produce more honey, and then will help you to sell it at the best price. Our "Service Department" has saved beekeepers hundreds of dollars in purchasing supplies. Send for a sample copy and let's get acquainted. We make liberal clubbing offers. Send us $1.75 and we will send you the Domestic and the American Bee Journal both for a year. Address all orders to The Domestic Beekeeper, Almont, Mich.

WANTED—We have installed a steam process for rendering old combs, cappings and slumgum, and want you to give same a trial. Write us for terms. We pay market price for the wax rendered or will make same into Miller's California Foundation. Send for our catalog.
Miller Box Mfg. Co.,
201 N. Ave. 18, Los Angeles, Calif.

ENGLISHMAN, Ex-officer of British army, son of prominent British beekeeper, life-time experience, desires managership of apiary in California. First-class education (diplomas), 22 years of age, strong, virile. Willing to take over next spring. First-class references. Write, stating salary, "P," American Bee Journal office, Hamilton, Ill.

FOR RENT—My 400-acre woodland and pasture farm in Berkshire mountains of Massachusetts. Fifteen lakes within ten miles. Substantial old farm-house in good repair, fitted with plumbing. Three large barns. Locality suited to dairy, bees and small fruit. Entire product can be sold on farm at retail prices. On main tourist route through Massachusetts. Rent can be partially paid by work developing farm. Only thoroughly responsible, long term tenant will be considered.
Arthur E. Morgan, Englewood, Ohio.

# Binding for Beekeepers

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading.

Send us your order for blank books and let us bind your magazines.

Following are prices of binding magazines:

| | |
|---|---|
| "American Bee Journal," cloth | $1.50 |
| Half leather | $1.75 |
| "Gleanings in Bee Culture," cloth | $1.25 |
| Half leather | $1.50 |

We also do all kinds of printing, such as Letterheads, Envelopes, Statements or Billheads, Price Lists, Advertising Booklets. No order too large or too small. We print the "American Bee Journal."

**LUTZ & STAHL, Keokuk, Iowa**

## Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick. Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year**
**United States, $1.25 Foreign, $1.50**
**Send for a free sample copy**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

# TEXAS BRED QUEENS

### THE SUCCESS OF BEEKEEPING DEPENDS ON GOOD YOUNG QUEENS

We will have several thousand for sale this Fall, also booking orders for next year. Send for *Free Circular* giving prices, etc., for Spring delivery. We will guarantee shipments to be made on time; circular explains. September and October is considered the best time for southern beekeepers to requeen.

| | 1 | 6 | 12 | 50 |
|---|---|---|---|---|
| Untested | $1.25 | $6.50 | $11.50 | $40.00 |
| Select Untested | 1.50 | 7.50 | 13.50 | 48.00 |
| Tested | 2.00 | 10.50 | 18.50 | |
| Select Tested | 2.75 | 15.00 | 27.00 | |

One pound package of bees $2.40—25 or more $2.16 ea.
Two pound package of bees 4.25—25 or more 3.83 ea.
Three pound package of bees 6.25—25 or more 5.62 ea.

Prices of regular Nuclei, also Nuclei on ALUMINUM COMBS, given in circular. We have shipped for several seasons thousands of pounds of bees all over the United States and Canada. Add price of Queen when ordering bees.

**NUECES COUNTY APIARIES** E. B. AULT, Prop. **Calallen, Texas**

# Crop and Market Report

Compiled by M. G. Dadant

For our October number we asked the following questions of reporters:

1. How is the final crop, compared to last year, and what is the average per colony?
2. How is honey selling?
3. What price is being offered producers?
4. What price do you expect to realize?

### THE FINAL CROP

The crop will be a little short of last year, though conditions have improved since our last report. The main reason for shortage will be the very small crop of white clover locations, and short crops in Wyoming, Utah, and especially in California.

The New England States report from a failure to 75 per cent of last year, while the rest of the East will not run over 75 per cent of the 1918 crop. The same is true of the State of Ohio, while Indiana and Illinois, with eastern Iowa, have practically a complete failure, except where there is a fall flow. Here the crop will be good. Western Iowa and South Dakota report a very good crop, while with Minnesota it is practically a failure. The largest beekeeper there will have an average of 10 lbs. per colony.

Michigan will have about half of last year, while Wisconsin, with a failure last year, will be improved.

Florida and Georgia will equal last year, while the balance of the South will not be nearly as good as in 1918; Texas reports from 150 to 500 per cen more honey than last year. Idaho and Montana are short, while Colorado will about hold its own with 1918. Washington and Oregon will not be up to normal, and the coast, as reported before, will not have more than 50 per cent of 1918.

### DEMAND FOR HONEY

It is yet early for the demand to stiffen, but we are inclined to believe that it is better than the condition for this time of the year as it was before the war. One big jobber states that the demand is getting good from soft drink and other manufacturers who used honey last year and are again forced to do so from the sugar shortage.

### PRICES PAID PRODUCERS

One report comes in from the South of an offer of 8 to 10 cents for average extracted. The bulk of the offers, however, are in the neighborhood of 15 cents for amber and 17 to 19 cents for white, with many purchases of white honey at 20 cents. Comb honey would sell readily at $5 per case, and we are surprised to note that one smaller Colorado Association is holding at $5.50 without a buyer, nor do they report buyers at 17½ cents for extracted, but they take a relatively high freight rate. In the markets comb is bringing over $6 per case. West Indian honey is wholesaling for $1.30 to $1.60 per gallon.

### PRICES ASKED BY PRODUCERS

One could probably obtain all the honey desired by offering the beekeepers 20 cents for white extracted f. o. b. their station. In fact, white orange is quoted at this with a cent less for white sweet clover f. o. b. California common points. Some little is being offered at 18 cents. The market seems to be stabilizing around 20 cents for best white extracted, and we will be surprised if the price goes much higher, though not a few beekeepers are holding for 25 cents f. o. b. their station.

Texas honey sells for 17 to 19 cents.

One large buyer of honey stated that he was offering 20 cents for white and 17 cents for amber, but that many were asking 25 cents. He stated that at this price he would buy only as fast as needed, since he was afraid of a future decline.

Comb honey prices are too low. With the present price of extracted, comb honey should not sell under $8.50 per case, yet we see no indication on the part of the producer to ask such a price, the highest I have seen being $7.50, and that for sales direct to consumer.

The Montana Association is advising its members to sell at the following prices: Comb honey, wholesale, $6.50 per case, retail $7 per case. Extracted honey, retail, 5-lbs., $1.35, 10-lbs., $2.65, 60-lbs., at 23½ cents per pound. Jobbing at 25 cents.

They argue that the jobber who has last year's stock left will have established a high price market and will, in time, be ready to buy at the higher price of 25 cents, which he paid last year. We know of one or two jobbers who are unloading their last year's honey at a loss. Yet the market may stiffen to the higher figure.

PAT. JULY 30, 1918

**C.O.BRUNO NAILING DEVICE**

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

MR BEES I GIV
U A GOOD DRINK
TODAY

**THE E-Z-WAY BEE FEEDER**

**Will Save Your Time and Save Your Bees and will Satisfy an Old Established Need**

A few pounds of sugar syrup will save your weak colonies; they will be worth many dollars to you next season. Don't lose one, when it is so E-Z to feed and save them with the **E-Z-WAY BEE FEEDER.** We send attachments for 3 hives, instructions for using, feeding and making the syrup with each Feeder. The winter will soon be here; don't delay; order at once, at our risk, 30 days' trial; money back if not satisfied. Price $1, or six for $5, postpaid. Remit by money order, cash or stamps, to

**THE HOLDEN MFG. CO.**
**CLARKSBURG, W. VA.**

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed, 85c.
**American Bee Journal Hamilton, Illinois**

**WESTERN BEEKEEPERS!**

We handle the finest line of bee supplies. Send for our 88-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**ATTRACTIVE CLOTHES**

Do not make the man, but they add greatly to his appearance.

Just so with your honey. It must have quality, but should have a neat package and an attractive label.

We can furnish the label. In many sizes and shapes suitable to fit any container.

Write for our new price list of honey labels and stationery.

**American Bee Journal, Hamilton, Ills.**

# THE DISCOUNT THAT COUNTS

In ordering your next year's supply, remember we offer a 5% cash discount this month. The opportunity is too good to miss. You can stock up the depleted list better now than any other time.

**OUR GUARANTEE** Our guarantee means that you get only standard goods. It means that you will be refunded in case you are not satisfied. Our greatest advertisement are the satisfied **Kretchmer** boosters.

**WE SAVE YOU FREIGHT** Council Bluffs is centrally located so that your order leaves here by the shortest direct route, saving you time and money.

**OUR AIM IS SERVICE** That is why we ship orders so quickly, and why we welcome inquiries. That's why we pay particular attention to the many Bee-Keeper's problems. Unusual Swarming? Trouble in Requeening? Bees Ready for Winter? How to Winter Them? What and When to Feed? Our specialist will be happy to give your case **particular and individual** attention.

SEND FOR THE CATALOG

MADE RIGHT BEE SUPPLIES
QUALITY SERVICE

REMEMBER THE CASH DISCOUNT

Watch this space for interesting developments within the next two months

**KRETCHMER MFG. CO., Council Bluffs, Iowa**

# If you had been on the Arizona

HERE she comes, homeward bound, with "a bone in her teeth," and a record for looking into many strange ports in six short months.

If you had been one of her proud sailors you would have left New York City in *January*, been at Guantanamo, Cuba, in *February*, gone ashore at Port of Spain, Trinidad, in *March* and stopped at Brest, France, in *April* to bring the President home. In *May* the Arizona swung at her anchor in the harbor of Smyrna, Turkey. In *June* she rested under the shadow of Gibraltar and in *July* she was back in New York harbor.

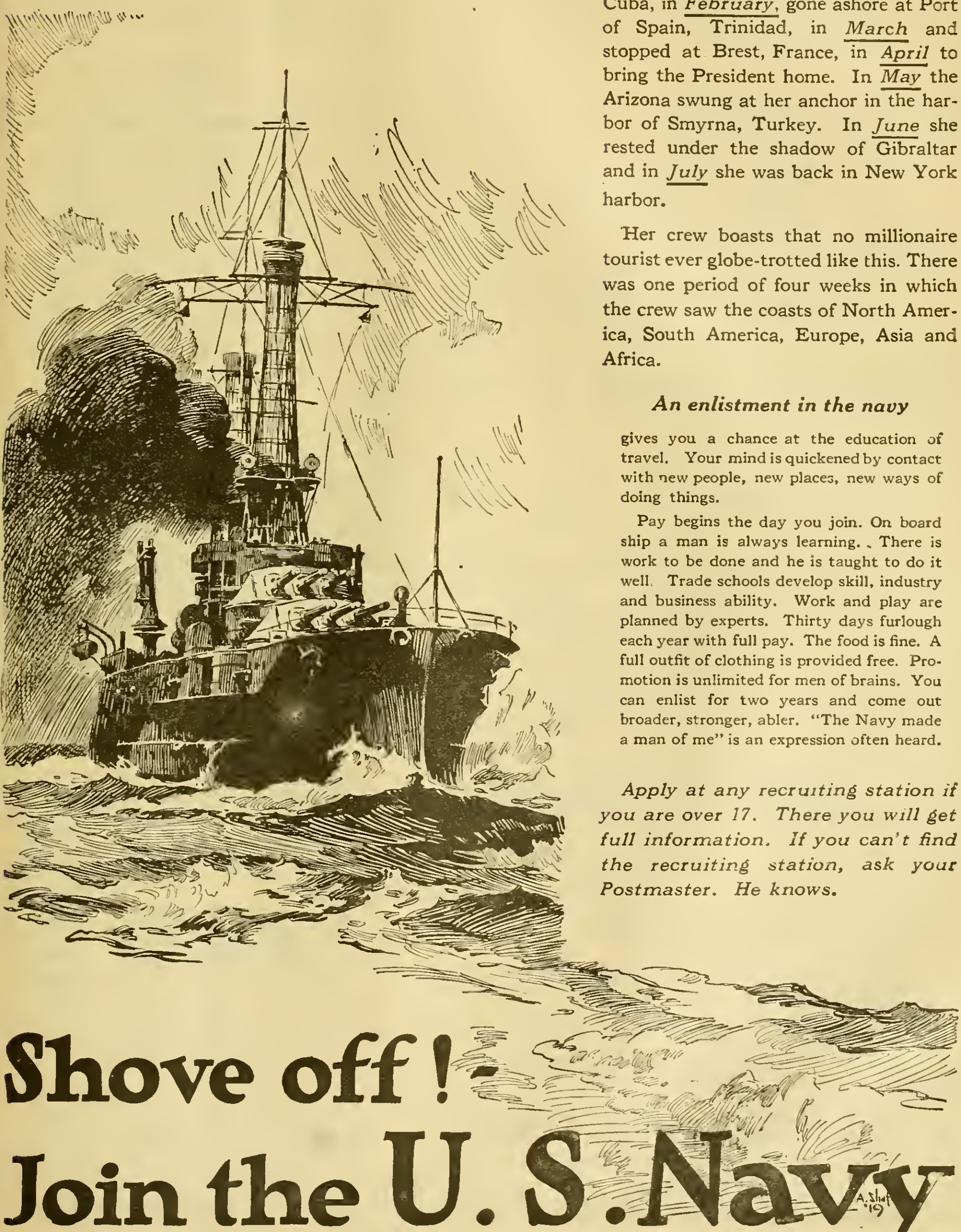
Her crew boasts that no millionaire tourist ever globe-trotted like this. There was one period of four weeks in which the crew saw the coasts of North America, South America, Europe, Asia and Africa.

### *An enlistment in the navy*

gives you a chance at the education of travel. Your mind is quickened by contact with new people, new places, new ways of doing things.

Pay begins the day you join. On board ship a man is always learning. There is work to be done and he is taught to do it well. Trade schools develop skill, industry and business ability. Work and play are planned by experts. Thirty days furlough each year with full pay. The food is fine. A full outfit of clothing is provided free. Promotion is unlimited for men of brains. You can enlist for two years and come out broader, stronger, abler. "The Navy made a man of me" is an expression often heard.

*Apply at any recruiting station if you are over 17. There you will get full information. If you can't find the recruiting station, ask your Postmaster. He knows.*



# Shove off!—Join the U. S. Navy

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 6.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

---

# EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

**A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

---

# BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments Our prices will interest you.

A trial order will convince you that our prices and goods are right.

**Send Us Your Inquiries**

**A. H. RUSCH & SON CO.**
**REEDSVILLE, WIS.**

---

# BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, $2; untested, $1.50. Price list free

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**

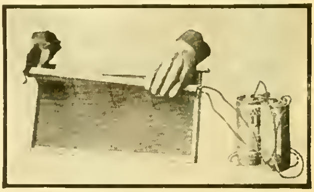
---

## CLOSING OUT SALE

An opportunity to enter another line of business has presented itself and I have decided to retire from the queen and bee business. I have probably the best outfit in Louisiana for the queen and package business, located in 3 yards in Avoyelles Parish, the best known bee section in the State. We have a live Parish Beekeepers' Association, and a State Association has recently been organized. I offer 400 colonies Italian bees, 8-frame, 2 stories, first class. Portable power extracting outfit, engine and power saw, together with supplies of all kinds on hand. This is complete and going business, profitable and ready to work. Best quality, and the outfit represents 5 years of careful painstaking effort. Business now on book for spring delivery. Delightful climate. Price $3,000. I am solvent; no forced sale. Correspondence only with those who mean business is desired. No lease or share deal considered.

J. F. ARCHDEKIN,
Big Bend, La.

---



## ELECTRIC IMBEDDER

**Price without Batteries $1.25**

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market.

**For sale by all bee supply dealers**

Dadant & Sons, Manufacturers
HAMILTON, ILL.

---

## PORTER BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

---

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**

## IMPORTANT ANNOUNCEMENT

Our New Steam Wax Rendering Department will be ready for business by September 8. We will render your old combs and cappings at the regular terms, which are as follows:

**Terms for Rendering Either for Cash or on Shares**

| | Cash Terms Per Pound | Share Terms Your Share | Share Terms Our Share |
|---|---|---|---|
| OLD COMBS | | | |
| On 100 lbs. or more beeswax secured | $0.07 | 80 per cent | 20 per cent |
| On 25 to 100 lbs. beeswax secured | .09 | 75 per cent | 25 per cent |
| On less than 25 lbs. beeswax secured | .14 | 60 per cent | 40 per cent |
| CAPPINGS | | | |
| On 100 lbs. or more beeswax secured | .04 | 90 per cent | 10 per cent |
| On 25 to 100 lbs. beeswax secured | .07 | 80 per cent | 20 per cent |
| On less than 25 lbs. beeswax secured | .09 | 75 per cent | 25 per cent |

Freight or express charges will be charged to the shipper.

For your share of the beeswax we will pay you our best cash price, quoted on application any time, or our trade price to apply on bee supplies you may need.

Should you be in need of comb foundation, your share of the beeswax may be worked into Foundation at our regular working prices. Send for special price list.

Also, we expect to begin handling honey by October 1, as our new equipment will be ready by this time.

While at the New York State Fair arrange to make our exhibit your headquarters, as all beekeepers aim to do. Wednesday and Thursday are Beekeepers' Special Days.

**THE DEROY TAYLOR CO., Newark, Wayne Co., New York**

## Seamless Paper Containers

THE MOST PRACTICAL AND ECONOMICAL CONTAINER FOR

## Honey

Superior to any other single service container manufactured

Write for particulars and prices

**THE SANITARY PAPER BOTTLE CO.** Sandusky, Ohio 415 Water St.

## Golden Italian Queens

Rustburg, Va., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed $5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

**PRICES OF QUEENS**

| | Nov. 1st to June 1st | | | June 1st to July 1st | | | July 1st to Nov. 1st | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2 00 | $8 50 | $15 00 | $1 50 | $7 50 | $13 50 | $1 25 | $6 50 | $11 50 |
| Select Untested | 2 25 | 9 50 | 18 00 | 1 75 | 9 00 | 16 00 | 1 50 | 7 50 | 13 50 |
| Tested | 3 00 | 16 50 | 30 00 | 2 50 | 12 00 | 22 00 | 2 00 | 10 50 | 18 50 |
| Select Tested | 3 50 | 19 50 | 35 00 | 3 00 | 16 50 | 30 00 | 2 75 | 15 00 | 27 00 |

Safe arrival, purity of mating and satisfaction guaranteed

**No Nuclei or Bees by Pound**

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

**BEN G. DAVIS : : Spring Hill, Tenn.**

## QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 years a Queen-breeder

| PRICES | Before July 1st | | | After July 1st | | |
|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 |
| Select unte'ed | $1.50 | $ 8.00 | $14.00 | $1.00 | $ 5.50 | $10 |
| Tested | 2.00 | 10.00 | 18.00 | 1.50 | 8.00 | 14 |
| Select tested | 2.50 | 14.00 | 25.00 | 2.00 | 10.00 | 18 |

**BREEDERS**—The cream from our entire stock of outyards, $5 each. Usually we can send all queens promptly after June 10th.

Breeders, select tested and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

**H. G. QUIRIN, Bellevue, O.**

## BEE SUPPLIES

**Let Us Figure With You**

Get our discounts before buying Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
**142 Grand Ave., Kansas City, Mo.**

**A BOOK FOR BEGINNERS**

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, $1, or clubbed with the American Bee Journal, one year for $1.75.

**American Bee Journal, Hamilton, Ill.**

**QUEENS** **OCTOBER DELIVERY** **QUEENS**

**GOLDEN AND THREE BANDED QUEENS**

The demand for our Famous Disease Resisting, Honey Gathering Hustlers is greater than ever before. Untested, 90c; 50 or more, 75c each. Select untested, $1; 50 or more, 90c each. Tested, $1.75; select tested, $2. Virgins, 40c. All Queens by return mail, or soon.

**BOOK YOUR ORDER NOW**

**M. C. BERRY & COMPANY, Hayneville, Ala.**

**MARSHFIELD GOODS**

**BEEKEEPERS**

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

**A BIG STOCK OF**

**BEE SUPPLIES**

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

**Shipping Cases for Comb Honey**

It is an acknowledged fact that comb honey put up in attractive Shipping Cases will bring a better price than the same honey put up in an inferior case. Our Shipping Cases are made of a good, clear grade of basswood lumber and will be a credit to any crop of honey.

TIN CONTAINERS FOR EXTRACTED HONEY

We have a good stock of—

**60 lb. Square Cans**
**12 lb. Square Cans**
**5 and 10 lb. Round Friction Top Pails**

We also carry in stock a complete line of all other beekeepers' supplies

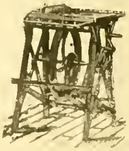
THE LOTZ 1 PIECE SECTION

**The kind that does not break in folding is manufactured by us**

Our 1919 catalogue and price list mailed to you free upon request.

**August Lotz Company**
**Boyd, Wisconsin**

**BARNES' Foot-Power Machinery**



Read what J. L. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**
**995 Ruby St., ROCKFORD, ILLINOIS**

**THIS IS THE "SIGN" ON EACH CYPRESS BOARD**

S C M A
No. of Mill
TRADE MARK REG. U.S. PAT. OFFICE

**DON'T GUESS MAKE SURE. "HAVE A LOOK"**

CYPRESS "THE WOOD ETERNAL"

CYPRESS DEFIES DECAY

For all uses that invite decay (for instance, bottoms) demand

**"ALL-HEART"**

*"Tidewater" Cypress*

"THE WOOD ETERNAL"

The "arrow" on the end of each board identifies the genuine product of the cypress mills whose CHARACTER of timber, methods of manufacture, and complete responsibility enable them to be members of the Association.

THIS FACT IS YOUR PROTECTION.

ACCEPT NONE BUT TRADE-MARKED "TIDEWATER" CYPRESS

**SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION**

1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, LET US KNOW

**HONEY** **WANTED** **HONEY**

Write us what you have to offer in extracted or comb. If comb state how packed, graded and quantity. If extracted, state how put up, mail sample and quote your lowest price. We will buy unlimited quantities if price and quality are right.

**C. H. W. Weber & Company**

**2146 Central Avenue** **CINCINNATI, OHIO**

HONEY, HONEY, HONEY

We shall be in the market for any quantity, both comb and extracted. Mail sample of extracted and state price asked in first letter.

**Beeswax** always in demand. Cash or in trade.

"GRIGGS SAVES YOU FREIGHT"

TOLEDO

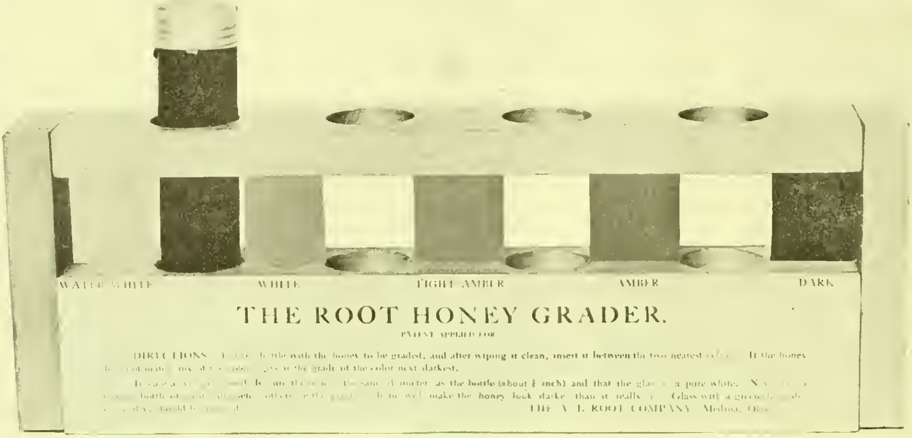
June is here and the big White Honey Flow with it. Don't get short of sections and foundation, the season promises to be good.

**Honey Cans and Cases**

Order these early, a limited number of second hand cans on hand at 75c per case

**GRIGGS BROTHERS CO.**

DEPT. 24 TOLEDO, OHIO



# A STANDARD HONEY GRADER

The honey producer needs—and has long needed—a standard honey grader by the use of which he could absolutely determine the grade of his honey as to color, whether he lives in California or Maine. There has heretofore been no standard. The producer of honey and the buyer of honey have each had in his own mind his own standard. Accordingly they have differed and haggled, resulting in confusion and misunderstanding and sometimes in bad feeling. This condition has been a positive detriment to the business everywhere.

Recognizing the great need of a standard honey grader, so that honey could be graded just as grain is accurately graded in all markets the same, experts in the A. I. Root Company set to work on the problem several years ago. Experiments of every kind in the testing of colors and color materials was begun. A large number of experts in the honey industry thruout the country were consulted as to the standard of shades of honey to be adopted and the number of such shades to be made standard. Samples of shades were submitted to these various experts and to many large honey producers, till a practically unanimous agreement was reached in adopting shades of "water white," "white," "light amber," "amber" and "dark." Only after comparing the colors of various honeys from every part of America were these shades adopted as standard.

Experiments with colored liquids in small containers and many combinations of colored glass were made. The problems and difficulties in securing exact shades of colors and permanency of such colors were many. Simplicity, practicability and permanency as well as definiteness of color were kept foremost in mind. It was finally determined that colored glass and only colored glass could meet the never-fading and never-changing requirements in furnishing standard honey colors. Paint, colored celluloid, colored liquids, etc., all change color when long subjected to light.

The glass-makers of America and Europe were then consulted, and asked to match in glass the shades of honey agreed upon as standard. No American glass-maker could meet the requirements; but a glass-maker of France was found who could—and did, altho at very large expense.

## THE ROOT HONEY-GRADER

So today, after years of experimenting and advising, we are prepared to furnish the honey producers of America a standard honey-grader—simple, convenient and certain. It has already been adopted as standard by the California Honey Producers' Co-operative Exchange and by Airline. The accompanying illustration shows at a glance what it is and how it is used. The five standard honey shades are reproduced in small glass plates, which are inserted in a wooden frame, provided with round cut holes beside each glass plate for the insertion of a small glass container which is standardized size. A sample of the honey to be graded is put in this container, which then may be inserted in any one of the holes between the two grade colors nearest matching it, and the grade is thus determined.

We shall be glad to furnish full information to all producers of honey interested in this truly "long-felt want."

(An early-order discount of 5 per cent on all beekeepers' supplies ordered in October.)

# THE A. I. ROOT CO.

MEDINA, OHIO

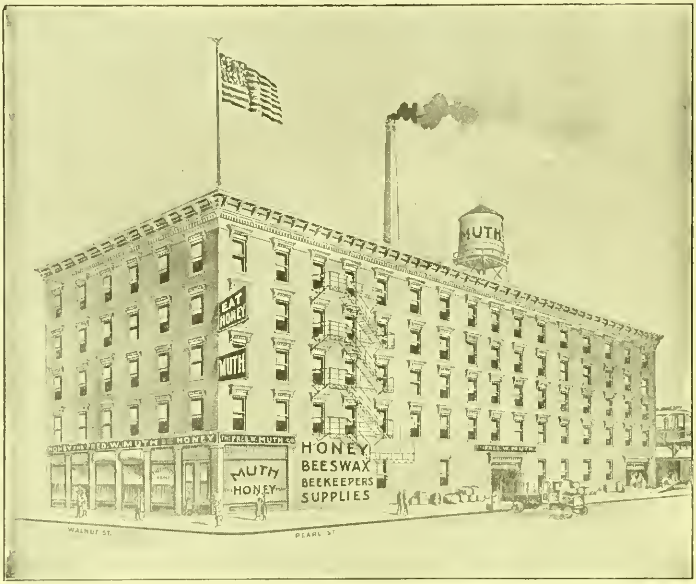
# AMERICAN BEE JOURNAL

NOVEMBER, 1919

[illegible]
[illegible]
NOV 1 - 1919
[illegible]
[illegible]

A GLIMPSE OF COLORADO MOUNTAIN SCENERY NEAR SPANGLER'S CABIN IN THE ROCKIES

# THIS HOUSE IS YOUR HOUSE. USE IT


EAT HONEY
MUTH
HONEY THE FRED W. MUTH HONEY
THE FRED W. MUTH CO
MUTH HONEY
HONEY
BEESWAX
BEEKEEPERS
SUPPLIES
MUTH
WALNUT ST.
PEARL ST.

## WHAT THIS HOUSE DOES FOR YOU

### IT BUYS

- YOUR EXTRACTED HONEY
- YOUR COMB HONEY
- YOUR BEESWAX
- RENDERS YOUR OLD COMB

### IT GIVES YOU

- SERVICE
- PRICE
- QUALITY
- PROMPT REMITTANCE

### IT HANDLES FOR YOU

- LEWIS BEEWARE
- ROOT'S SMOKERS AND EXTRACTORS
- DADANT'S FOUNDATION
- HONEY CONTAINERS

## HONEY

Send us a sample, tell us how much you have and what you want for it. We are always ready to buy. No waiting for your money when you ship to us. We remit the day your shipment arrives.

**THE FRED W. MUTH CO.** Pearl and Walnut Streets
CINCINNATI OHIO

"THE BUSY BEEMEN"

# Four Bee Books
YOU SHOULD HAVE
IN YOUR LIBRARY

## First Lessons in Beekeeping
By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

**Price $1**
Mailing weight, one pound

## A Thousand Answers to Beekeeping Questions
By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

**Price $1.25**
Mailing weight, two pounds

## Practical Queen-Rearing
By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

**Price $1**
Mailing weight, one pound

## Langstroth on the Honey Bee
Revised by
C. P. DADANT

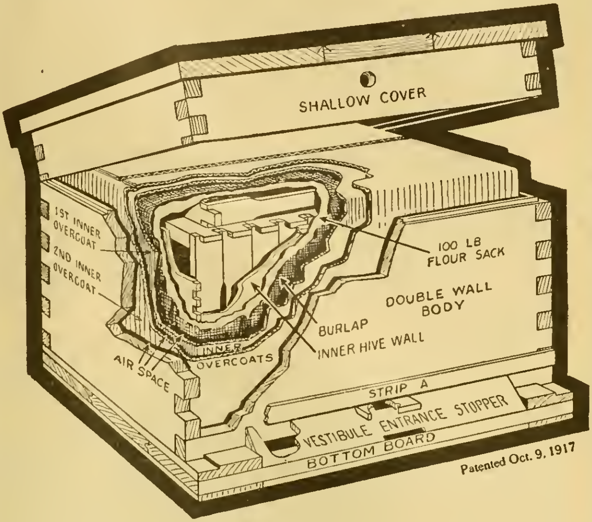
*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

**Price $1.50**
Mailing weight, three pounds

ALL FOR SALE BY
**AMERICAN BEE JOURNAL**
HAMILTON, ILLINOIS

## Winter Problem Solved
BY THE
# Hive with an Inner Overcoat



The above illustration shows the substantial, compact, neat and efficient equipment that winters normal colonies of bees perfectly.

It consists of a frame of honey laid over the top of the others, if you have no extras, one can be removed from the brood-nest for the purpose. A 100-pound flour sack is spread over the top and a piece of burlap 34x36 inches is laid over this. The First Inner Overcoat is telescoped down over the brood-nest in between the inner and outer hive walls, the flour sack and burlap being carried down with it. This has the effect of wrapping the brood-nest in a blanket. The Second Inner Overcoat is then telescoped down over the first. (The Inner Overcoats are removed in the Spring and stored away in the flat.) This insulates the colony with a ⅜ inner hive wall, with a flour sack and burlap wrapped about it, two thicknesses of corrugated paper board around the sides and ends and four thicknesses over the top, together with the intervening air spaces and the ⅞ outer hive wall. The work is done quickly and easily with no litter of packing materials.

It will pay you to try out a sample shipment this fall. For the next sixty days we will furnish five hives equipped as shown above for $27.50, F. O. B. here.

### TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

SPECIAL PRICES

Crates of 100 five-pound pails, $8; crates of 200 for $15.
Crates of 100 ten-pound pails at $12.50. Sixty-pound cans, two in a case, at $1.15 per case. Shipments made from Michigan, Ohio, Illinois and Maryland factories.

**A. G. WOODMAN CO.**
GRAND RAPIDS, MICH., U. S. A.

"falcon" **BEE SUPPLIES** "falcon"

HIVES, SUPERS, FRAMES, SECTIONS, FOUNDATION

**In fact anything in the line of Bee Supplies**

Have you ordered your supplies yet for the season of 1919 which is now with us, or are you waiting for the last moment to come around when the supplies now carried in stock will be nearly exhausted, or the shipping department so busy that they will not be able to give you the quick service which you naturally expect? Just stop and think what would happen if all beekeepers would do this. To relieve the situation and to help conditions in general, get your order in at once.

We are prepared to make immediate shipments from our large warehouses, which were packed to the brim before the season started.

You all know what the "**Falcon**" line is, and you ought to know what the "**Falcon**" service is. If you never ordered from us before, better let us have the next order to convince you not only for once, but forever.

Send for the Red Catalog and "Simplified Beekeeping"

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Best Beehives Come From**

SUPERIOR FOUNDATION Again Wins

SUPERIOR HONEY CO.,
Ogden, Utah,

Linden, Alabama, Sept. 5, 1919.

Gentlemen:

I have tested your Superior Foundation with that of the party who claimed that the bees would take to theirs first, and also with that of another manufacturer. I first selected 3 two-story hives, from which I extracted the honey, and noted the amount of honey from each hive. There was less than a pint of honey difference in any two of them, indicating that they were of about equal strength. I then filled 3 lots of 9 frames each with foundation of the three makes, being careful to write the name of each manufacturer on the frames in which I placed each sheet of foundation. Then I placed each 9 frames in a hive body, placing the covers on and setting them on the hives, not knowing on which hive anyone's foundation was placed Then I opened them and wrote each name on the outside, numbering the hives and the date placed. With the remaining sheets I filled 5 frames with Superior Foundation and 5 frames with Dadant's Foundation, which was bought at San Antonio, Texas, and which was not opened up until the same time yours was opened. I tried to be fair with everyone, for I wanted the best foundation, and if theirs was what they claimed, I wanted it and nothing else.

This test was made on Aug. 10, 1919. Today, Sept. 5, 1919, the Superior Foundation on hive No. 2 is every single frame drawn out and filled with honey and brood. On hive No. 3 the Dadant Foundation is about one-half drawn. On hive No. 1 the other make of foundation is almost fully drawn out and is being filled with brood and honey. I would estimate that Superior Foundation is 95 per cent drawn, Dadant's about 45 per cent, and the other make about 65 per cent. On hive No. 4, one-half Superior Foundation and one-half Dadant's, the bees began on Superior Foundation and filled it out, and filled 3 frames of Dadant's, or about 100 per cent Superior against 60 per cent Dadant's.

Aside from all this, I did not see the slightest defect in any sheet of Superior Foundation. Your foundation is also a little longer than Dadant's and almost fills the Hoffman frame, while theirs has too much play at each end.

If you will have a supply I will buy my foundation from you next season, and my friends will doubtless do the same.

Very respectfully yours,

J. E. SUTTON.

SUPERIOR HONEY CO., Ogden, Utah

(Manufacturers of Weed Process Foundation.)

USE THE BEST. If your dealer cannot furnish you SUPERIOR FOUNDATION, write us for special prices.

Read *"THE BEEKEEPER"*

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick. Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

**Price, postpaid, $1 per year**

**United States, $1.25 Foreign, $1.50**

**Send for a free sample copy**

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

**SURPLUS STOCK OF FINE GLASS JARS**

holding 19 ounces, put up two dozen in a case, including lacquered tops. Must be moved at once. Our prices, while they last, will be $1.70 per case, $16.50 for 10 cases. This is an unusual offer, so order now and be certain to get your wants supplied.

**THE KRETCHMER MFG. CO.**

**COUNCIL BLUFFS, IA.**

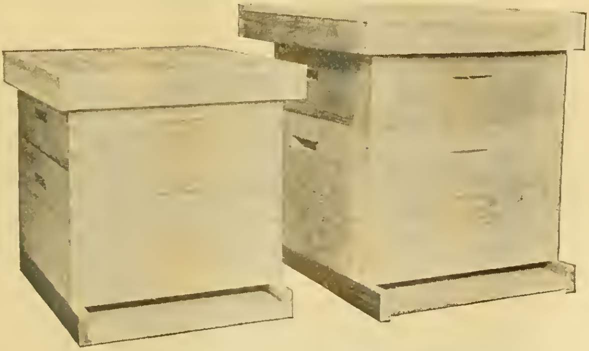
# THE LARGE HIVE

More and more beekeepers are realizing the value of a hive with large brood chamber for extracted honey production.

We have, ourselves, for years, used and advocated a large hive. The original Dadant Hive, however did not win favor with a majority of beekeepers since its large telescope cover and complex construction made it very expensive; and, moreover, it did not lend itself readily to the use of Langstroth equipment.

It is with the object of combining all the advantages of the large hive with economy of construction and availability of existing equipment that we have evolved and now offer

## THE MODIFIED DADANT HIVE



The regular ten-frame Langstroth and Modified Dadant Hive compared. The latter has a forty percent larger area in the brood chamber yet costs approximately only 25% more.

ITS ADVANTAGES: 1. A deep frame to conform to the egg-laying circle of the queen. 2. A large, compact brood-chamber in one-story capable of accommodating the most prolific queen. 3. Ample ventilation by means of 1½-inch spacing of frames. 4. Excellent for wintering on account of large brood-chamber and large clustering space. 5. Swarm control. 6. Allows the use of the standard Langstroth supers or bodies for storage room.

ITS CONSTRUCTION: Eleven frames Langstroth length and Quinby depth, spaced 1½ inches from center to center. Regular style metal cover, regular style bottom-board. Dovetailed body. Hoffman frames. Six and one-quarter-inch frames in shallow super.

---

WRITE TODAY FOR DESCRIPTIVE BOOKLET AND PRICES.

**DADANT & SONS, Hamilton, Ill.**

# THE BEES WON'T WAIT

When the honey flow is on, the bees won't wait.
They become imbued with the spirit of opportunity.
Then the hives must be ready; the supers piled up.
Every day's delay means a big loss in the honey crop.
There is no time then to wait for bee supplies.
"Forewarned is forearmed." Buy supplies this winter.
You can get your season's goods at lower prices now.

**WE ALLOW A FOUR PER CENT DISCOUNT
ON CASH ORDERS IN NOVEMBER**

## "HOW" BOOKLETS

There are two booklets at 5c each which every beekeeper should read in planning his 1920 profits. The titles are: "How to Winter Bees Outdoors" and "How to Use Comb Foundation." These are part of the Lewis Pocket Library of 11 booklets all for 55 cents.

**LOOK FOR**

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS WIS USA
MAKES THE FINEST

**THIS MARK**

Have we your name for our 1920 catalog? If not send it to us by return mail

---

**THERE IS A DISTRIBUTOR NEAR YOUR APIARY**

---

**G. B. LEWIS COMPANY, WATERTOWN, WISCONSIN**
**MAKERS OF BEEWARE**

AMERICAN
BEE JOURNAL

VOL. LIX—NO. 11 HAMILTON, ILL., NOVEMBER, 1919 MONTHLY, $1.00 A YEAR

# SUCCESS WITH OUTAPARIES

BY M. G. DADANT

WHERE one beekeeper twenty years ago was an outapiarist, probably more than fifty are today. We are apt to lay this to improved methods of beekeeping and to the initiative of the modern beekeeper, who keeps bees for a living, rather than as a side issue. Yet when we look back over the methods of transportation and the difficulties encountered by the successful outapiarist, the wonder is that there were then so many outapiaries. The territory of each apiarist was naturally limited by the distance he was able to travel with a team of horses, and the number of colonies he could keep, by the number he was able to look after with the time at his disposal. Half of the time was used in travel to and from the apiary. The moving of bees was an extraordinary hard job, owing to the danger of stings, with horses, and the long time needed on the road, and hours were long under almost any conditions.

Well do I remember one of my first trips at turning the extractor at one of our outapiaries about twenty years ago. This apiary was only about 5 miles from home, but we were extracting during a dearth of honey, and we were, moreover, using a temporarily vacated dining room of the farmer's house for extracting. This necessitated replacing the supers on the hives at nearly dark. I had gone to the outapiary with our man and the team. By the time extracting was done and the supers returned to the hive, it was after 9 o'clock and the rain had started falling. We still had our wagon to load and the five-mile trip home. Before we had traveled half the distance, the rain was falling in torrents, and by the time we reached the home place we were drenched, and it was nearing midnight. Naturally, my mind did not turn to the possibility of ever having access to territory fifty or more miles away, nor the possibilities of moving bees such a distance to catch an extra crop, and I rather leaned (that evening at least), towards less bees and all kept in the home apiary.

There are several things necessary to make a successful outapiarist, and foremost of these, of course, is a thorough knowledge of beekeeping practice. Necessary as it is to be a beekeeper, rather than a keeper of beehives, for success in the home apiary, it is doubly so for the outapiarist.

He must know what is necessary at the outapiaries at all seasons of the year. In winter, the entrances may become clogged with ice if bees are wintered out-of-doors, or the temperature may be variable in the cellar.

If improperly put into winter quarters there may be spring dwindling. Early examinations will have to be made in the spring to close up dead colonies, and contract the entrances of the weaker ones. When weather permits, more minute examinations of each colony for queens, food store, and disease, will have to be made. Drone-laying colonies and queenless ones should be united to strong colonies, and winter packing removed.

As the crop approaches, the bees should be prepared for it, so as to have a maximum producing force ready for the crop when it arrives. Supering should be done at the right

An outyard in Mississippi river bottoms, property of E. A. Welch, Quincy, Ill.

time to hold down swarming, and entrances of hives should be enlarged according to their strength. The outapiarist must endeavor to allay the swarming impulse, since in the outapiary a larger percentage of swarms would be lost. He must remember, and put into practice, the fundamentals in swarm prevention—young queens, ample breeding and storing room, sufficient ventilation, absence of drone comb.

With the crop will also come further examination for queens and disease. If excluders are to be used, the beekeeper should combine some definite system with their use or he is apt to defeat their purpose by restricting too closely the breeding-room of the queen and thereby weaken his colonies.

Following the storing of the crop will come its harvest, with consequent necessity for knowledge of different appliances for extracting and storing and precautions to be taken should there be a honey dearth at extracting. Then one cannot be too careful, if placing escapes, to make all tight above them, guarding against robbing of the unprotected honey. Robbing around the extracting house should be checked as much as possible and sticky supers returned only at the close of the day during the dearth. Unprotected combs should be kept free of moths.

With the middle of summer, colonies should begin to be prepared for the winter rest. There will be necessary, an abundance of stores, plenty of young bees, and sufficient protection can be given later in the fall, and to some extent, the added stores, but the young bees must be raised soon if they are to be in abundance for the winter cluster.

With the fall will come the supplying of stores, should the beekeeper not be fortunate enough to have been sufficiently provided by natural honey-flows. The choice of wintering systems will also have to be made, whether it be cellaring or out-of-door wintering by some approved method, the choice being determined by the variability of the climate in each section of the country and the protection afforded by natural methods, such as windbreaks, etc.

In fact, the activities of the wide-awake outapiarist will be a constantly changing panorama, from early spring till his bees are placed for their long winter rest, nor would such efforts be much mitigated by the winter, were he as active in the disposition of his crop as in the harvest. It seems very strange that a beekeeper should devote so many months of the year and so much labor to the preparation for the harvesting of the crop, only to turn around and sell it to the first buyer. I believe the time is fast approaching when marketing will be as truly a part of the honest efforts of the beekeeper as is production. Then the beekeeper will get out and create a market, instead of waiting for the market to be developed from without.

The wise manufacturer first creates a demand for his product, then works to supply his customers. Why should the beekeeper do otherwise, first producing his crop, then later making a more or less feeble effort at selling it?

One of J. F. Diemer's outyards in the Missouri River hills, near Liberty, Mo.

### Knowledge of Territory

It is imperative that each beekeeper know his territory. He must know the extent of the flora in his section so as to be able to determine how many colonies he may place in each location without overstocking.

But with the elasticity in opportunity for outapiary expansion by means of the automobile and truck, he should do more than this; he should study carefully his territory for 100 miles in each direction. He may, by this same means, place his apiaries to best advantage, and he may, moreover, change locations (migrate) with his bees to an extra crop. An instance of this may be mentioned in the case of the Dadant apiaries during the season just passed. White clover, our main flow, was a failure, and such little as there was, together with sweet clover, was used in making increase. Careful observation showed us, however, that the drought had not affected the growth of weeds in the Mississippi bottoms some distance away. By the aid of two large trucks all of the 700 colonies in these apiaries were moved into the bottom for the added harvest with the result that a haul of forty miles at the most meant an average of from 75 to 100 pounds to the colony instead of a summer

Outapiary at foot of a mountain in California. A variety of forage is within reach of a location like this.

One of Bunger's outyards at Eskridge, Kansas.

dearth, with consequent necessity for liberal feeding to get colonies in condition for the winter.

If possible it is very desirable to get contour maps of your own county and those adjoining, then get in touch with county agents to find out the possibilities. There may be a tract of alsike or sweet clover fifty miles away to which it would pay to move an apiary. The rainfall may vary considerably over a radius of 100 miles, so that there may be a drought in one sector and prodigious rainfall in the other. Migratory beekeeping in days past was uncertain, but not so much now over a distance of 100 miles or less, with the big truck mode of transportation.

Many beekeepers in California practice it, and not only move from one crop to another, but are able, by careful planning, to take advantage of several crops in a single season. The Edson apiaries in Northern California, load 100 colonies at a time on their big four-ton truck and travel from one flow to another. Their apiaries are placed in units of this number of colonies for best results. Some apiarists catch the early flows in California and ship by rail to Nevada or Utah in time for the alfalfa there, to return to California for the fall. But the long overland haul by rail takes much experience and had best not be attempted unless the beekeeper is in a position to stand possible loss.

### Systems of Management

With special reference to the crop and its harvesting, there are three general systems of management practiced by the best apiarists of today. They are the system with the temporary or portable house, that with the permanent house, and that with the central extracting system. Each has its advantages. Each fits in with conditions applying to individual beekeepers.

Where apiaries are not located permanently for year after year, and conditions not desirable for erecting a well-built, permanent honey-house, very often a small building of temporary structure is provided for housing supers, hives and utensils; the extracting being done in a temporary house made of muslin, screen or some other suitable material, put up at extracting time, to be taken down and removed to the next apiary as soon as the crop is harvested. Many use tents for this, but these are at best a makeshift, since they are hot and difficult to make bee-proof.

Where the apiary can be permanently located, a well-built, permanent house is much better, and it should be made large enough to hold all supers and extra equipment. A house 16x20 feet is not too large. In this a permanent extracting outfit may be located, though the usual rule is to carry the extractor and equipment from apiary to apiary as the work progresses. Such houses may be made sectional, so as to be easily moved in case change of location is desired. Many are made, either with wintering cellar beneath, or with cellar to be used for storage tanks, so that the honey may be piped directly from the extractor and capping can or box.

Very recently, the central extracting plant has met with favor by those who have tried it. With this system, all honey is hauled home to be extracted, and the building is made sufficiently large for the most modern equipment in every particular. Extractors (possibly two or more of them), are run from one shaft, which may also run a honey pump, etc. Steam for heating honey, melting wax and heating the honey knife, as well as for heating water and the rooms of the house, is provided by one boiler. Hot and cold water, a carpenter shop, etc., may be provided.

There are many advantages to this system. Centralization naturally allows of best methods with minimum outlay. Work is done at home under constant supervision and all equipment is at hand where it can be readily cared for. Apiaries may be changed in location with least annoyance.

Yet there may also be disadvantages. If foulbrood is prevalent in the outapiaries, there is danger of spreading the disease by the intermixing of combs. In hot weather, combs of honey may melt while being hauled home, or if it be cool, they may break badly. Sticky supers have to be returned, with consequent robbing. The roads may become muddy and not allow taking off supers when they are ready. If the supers are removed during a honey dearth, robbers will be bad, and by the time

A Colorado outyard.

you have your truck loaded, they may be around you in a swarm.

It would seem better to have a small house at each apiary, in which supers might be stored in case of necessity. It would not need to be large, but should be absolutely bee-tight.

Very few who have tried the central plant would willingly return to their old method. Every man to his conditions, however. A large majority of extracting systems are still run with all extracting done at the outapiaries, and many of them probably more advantageously than with the central extracting house.

### Automobiles and Trucks

No doubt that the automobile and truck are responsible for most of the improvement in the methods of running outapiaries over what prevailed twenty years ago. Yet the beekeeper should figure costs very carefully before coming to a decision as to what type to use.

The beginner will probably be content with the pleasure car, or one which has been remodeled for his needs. He can accomplish all work except the hauling home of the honey with it. It may pay him to have this work done by hired machines.

Likely the apiarist with three apiaries or less will do well with the converted machine, having his heavy hauling done outside. The beekeeper with five or more apiaries can use the light truck (one ton or less) to advantage, while a system with 1,000 colonies or more may find the big truck of advantage. But in this instance, there will have to be smaller cars for regular apiary work.

Not enough attention to costs is paid by any beekeeper. We know of one or two apiarists who have bought trucks beyond their needs, running their operating costs much higher than if they had chosen a smaller machine.

As in many other branches of beekeeping, the choice will have to be made by the individual beekeeper. Each one should be best able to determine from his system just what is most suitable to his own needs.

---

## Are We Good Samaritans?

IN the October number, under the above title, we published an appeal to American beekeepers for help for their destitute brothers in Europe. The responses are surely coming. Yes, we are good Samaritans!

We were barely through mailing the last copies of the October number when the first responses came, October 3. Here are the first two letters:

"I have just read your editorial, 'Are we Good Samaritans?' It hit the spot with me. I am sure there are thousands of beekeepers in the United States who want to help the unfortunate beekeepers in France and Belgium and are glad to see you start the ball rolling.

"I am enclosing check for $104. Use $100 as you think best for Franco-Belgian relief and $4 to advance my subscription 5 years. I wish you great success.

"HARRY CRAWFORD,
"Broomfield, Colo."

Second letter:

"I have had a good crop. Can get 25 cents for all my honey at home. Read your proposition to help those beekeepers living in the war zone. A little from our beemen will put them again in the bee business and we will not miss it. I enclose $2, for which they can get some fixtures, frames, etc.

"HERSCHELL FELTON,
"Late Sgt. 1, Co. H., 37th Ill Vol,
"Millersburg, Ill."

These letters are in the right spirit and I was enthused to receive them so quickly. But listen:

Leon Tombu, of Huy, Belgium, formerly president of the International Congress of Beekeepers that met in Brussels in 1910, now secretary of the same organization to meet in Rome in 1920. Mr. Tombu is very active in war relief for the spoliated and homeless beekeepers of Belgium and France.

The very next day I had a visit from Hugh L. Cooper, the great hydraulic engineer who built the big dam across the Mississippi. He was a colonel of engineers in the great war. He helped rebuild and enlarge some seaports in France, and saw the devastation of those countries. As he spoke to me of those matters, I accidentally mentioned the subscription work we had undertaken to help the Franco-Belgian beekeepers. I told him of Harry Crawford's prompt response with $100 subscription. With his customary briskness and wholeheartedness, he quickly interrupted me and said:

"Mr. Dadant, I'll meet that man's subscription." "What, do you really mean to say that you will give us another hundred for the beekeepers of Europe?"

"Exactly, Put my name on the list and I'll send you my check for $100."

Here we are, only a week from the publication of the appeal and our list of help is as follows, in addition to the October subscription:

| | |
|---|---|
| Harry Crawford, Broomfield, Colo. | $100 |
| Herschell Felton, Millersburg, Ill. | 2 |
| Hugh L. Cooper, New York City | 100 |
| Lutz & Stahl, Printers of American Bee Journal | 5 |
| A. A. Augenstein, Dakota, Ill | 5 |
| M. M. Martin, Caledonia, Ill. | 5 |
| John M. Davis, Spring Hill, Tenn. | 4 doz. queens (Italian) |
| Allen Latham, Norwichtown, Conn, | 25 queens (Italian) |
| G. B. Lewis Co., Watertown, Wis. | $200 in supplies at wholesale |

Do we need more? Yes, certainly.

The damages to be paid by Germany wil be insufficient. Looking in any direction, we find statements confirming that view, from entirely disinterested persons.

For instance, Bishop Theodore Henderson, of the Methodist church in Detroit, writes, in "Victory":

"It is understood that the construction of buildings will be done by the French Government, but it is estimated that, even if the maximum reparation money is secured from Germany, there will be no surplus for the villagers to secure kitchen utensils, garden tools, farm implements, household furniture and the like."

The Anglo-American Mission of the Society of Friends sends us an appeal for bees or supplies.

Mr. Leon Tombu, 26, Rue D'Angleterre, Huy, Belgium, who was President of the International Congress of Beekeepers, in Brussels, in 1910, and is now Secretary of the same organization, wrote us several times in view of securing bees or supplies from American beekeepers. He made a trip to Italy, during the summer, to arrange for the shipment of Italian bees to the devastated regions next year. He expects that it may be possible to secure bees, in the spring, from Germany and the Netherlands. He writes us as follows:

"We are very thankful for your proposed help and also for the encouraging letters received from Dr. Phillips, of Washington. I have transmitted a copy of your letter to the Director-General of Belgian Agriculture, who feels very thankful for your efforts. You are right in stating that America is rather distant for us to secure gifts of colonies of bees and receive them in good shape. But if we can get bees elsewhere and supplies or cash from America, we can probably help rebuild, in small part, our destroyed beekeeping."

The French "Commission for Rebuilding Destroyed Apiaries" is securing some help from the unhurt parts of France. It is publishing a subscription list in L'Apiculteur. But when we consider that France has lost as many men as our entire A. E. F. (nearly two million), that 90 per cent of her industries were directed, for at least 4 years, to the making of arms and ammunition, that some of her best land is now a chaos where nothing can be grown, and that her money values have depreciated, we can easily see that it will take but a small effort on the part of American beekeepers to more than treble the gifts expected.

We are deriving profit from high prices and those high prices are due in great part to the suffering of Europe. If each reader of one of the American bee magazines was to give but 50 cents, it would constitute a liberal donation to Belgium and France, in beekeeping. There is plenty of generosity in this country and it has not reached the limit. Come, friends, let us have your subscription, no matter how small. Large ones accepted. Everything will be acknowledged and a statement published of where the money and supplies go.

We don't expect subscriptions from all our subscribers. But we do know that if they can afford to send a remittance such as they will probably not miss, they will feel great pleasure in having helped. Dollars, in American money, just now, increase in value nearly 60 per cent, when changed for French or Belgian funds. We propose to forward the cash remittances before the European funds regain their value, and we are going to be very careful to secure proper distribution.

---

## Grading Honey in New Zealand For Export

By I. Hopkins

SOME 25 or more years ago, when our export trade in butter, cheese and meat began to assume fairly large proportions, and promised to expand enormously in the future, provided it was conducted in a straightforward manner, our Government, with commendable foresight, took a hand in it, with the object of preventing, through fraud or carelessness any injury to the growing trade by the export of inferior produce. Legislative measures were passed, regulations formed, and official graders appointed; and none of the commodities mentioned were from that time allowed to be exported without being officially graded and stamped as to grade. The effect of such regulations was that the export trade went ahead with the proverbial leaps and bounds, because it gave confidence to buyers without examination. The Government grade marks were sufficient. Today the annual value of our export trade in butter, cheese and meat is an enormous sum for so small a country.

. The foregoing is a brief account of the commencement of our grading system. I may state that practically all our export trade is with Great Britain.

The first honey raised in New Zealand under the modern system of beekeeping , exported to Britain, was raised by myself in 1883, and subsequently, in 1888 and after, I exported considerable quantities of the best quality. This was the means of creating a good name for our honey, which it has retained ever since. In order to preserve the good name it was considered advisable, some years ago, to include honey in the grading system, and in November, 1915, Government grading regulations were gazetted and they became law, since when no honey has left the country ungraded. The confidence of oversea buyers is evidenced by their purchases en route on the Government grade marks. I enclose a copy of our grading regulations, from which you can quote the salient points.

Aukland, New Zealand.

(Our esteemed contributor includes with his letter a copy of the New Zealand grading regulations. These are too lengthy for full insertion, but we pick out the following interesting points:

No honey may be exported until it has been graded. Four different ports are named in which honey may be graded and the location given where the grading is done. The honey must be divided into uniform classes, with distinguishing marks, if not of the same kind or quality. All honey submitted must be granulated. No honey is graded or allowed to be exported unless granulated. It must be packed in clean, strong tins, lacquered or oiled on the outside to prevent rusting, with leak-proof lids which may be removed and replaced easily. The packing cases must be clean and new and constructed of well-seasoned timber, planed on the outside and strapped with metal or wired. They must contain not to exceed 120 pounds net. The cases must be branded with an export brand to be registered and approved. The net weight of the honey to be marked on the cases.

The honey is divided into 4 classes, white, light amber, medium, dark.

No charge is made for grading.

Each class is divided into 4 grades:

A, Special grade, 94 to 100 points.
B, Prime grade, 88 to 93½ points.
C, Good grade, 80 to 87½ points.
D, Manufacturing grade, 65 to 79½ points.

For the purpose of grading, the maximum number of points that may be allotted to each class in respect of the several qualities follows:

| | |
|---|---|
| Flavor | 40 points |
| Color | 10 points |
| Condition | 15 points |
| Grain | 12 points |
| Aroma | 8 points |
| Freedom from scum and froth | 10 points |
| Packing and finish | 5 points |
| Total | 100 points |

In our exceedingly free country, the first impression of the reader in regard to such a government regulation is: "too much paternalism." But what if it renders export more easy and protects the honest producer against the speculation of dishonest middlemen and unfair producers?

Some years ago we read a book entitled: "Newest England," by Henry Demarest Lloyd, a description of New Zealand and its progressive and democratic administration. It has left to us the impression of wonderful possibilities in an entirely different method of democratic government from that to which we are accustomed.

Those people at the antipodes may have good ideas, worthy of investigation.—Editor.)

---

## To National Association Members

SOME time ago the writer addressed an appeal to each United States Senator and Representative from California urging their endorsement and support of the bill introduced in the Senate by Senator Arthur Capper, of Kansas, making it entirely legal for workers of the soil to organize and cooperate. Many interesting letters have been received from these gentlemen in reply, and since California is a hotbed of co-operation, particularly among the producers of the soil, the beekeepers will be pleased to know that the sentiment in favor of co-operative organizations among the farmers is running very high.

The writer, as Secretary of the National Beekeepers' Association, asks that beekeepers everywhere, and particularly the officials of beekeepers' associations everywhere, write to their United States Senators and Representatives urging similar endorsement of the Capper bill in the United States Senate and in the House of Representatives.

The beekeepers should organize on strictly co-operative lines; by that we mean non-stock, non-profit associations. They should be reasonable, just, and not exorbitant in their prices, and strive to build a dependable outlet for their goods, with a firm policy in the matter of grading, packing and branding, and maintain at all times a serious and watchful consideration for the laws of supply and demand, keeping their honey always moving out freely on to the market after the assembling period has commenced. By carrying out these principles and processes they command the respect, interest and attention of the buying public; they win valuable and confiding customers for their goods. The benefits of organization give them a handsome reward and maintain an unbroken link from producer to consumer. The producer is by this steady outlet insured a normal return every year for his effort, labor and skill; production is thus greatly increased; the consumer reaps his large reward in the increased production, which likewise ultimately the new distributing system can handle at the lowest conceivable cost, thus benefitting both producer and consumer alike, eliminating needless speculation and preserving only the legitimate and necessary middleman.

It costs only $1.50 a year to join the National Beekeepers' Association and help along our work in this and a hundred other similar ways. The new slogan should be: "Government of the beekeepers, for the beekeepers and by the beekeepers."

CHARLES B. JUSTICE,
Secretary-Treasurer National Beekeepers' Association, 318 Investment Building, Los Angeles, Cal.

AMERICAN BEE JOURNAL

Established by Samuel Wagner In 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF

C. P. Dadant ........ Editor
Frank C. Pellett ........ Associate Editor
C. C. Miller ........ Questions Department
Maurice G Dadant ........ Business Manager

(Copyright 1919, by C. P. Dadant.)

## THE EDITOR'S VIEWPOINT

### Granulated Honey

We call the attention of our readers to the contribution, in this number, of our esteemed friend, I. Hopkins, of New Zealand, with the export regulations of the New Zealand Government, accompanying the letter. It will be noticed that "no honey will be graded or allowed to be exported" out of New Zealand, "unless it is granulated."

The authors of this ruling evidently recognize the fact that good honey usually granulates unless it has been doctored or heated. The New Zealand authorities are not the only ones who appreciate this fact.

A few weeks ago, among our correspondence with foreign dealers in extracted honey, we received a letter from an experienced purchaser containing the following:

"Please note that I want **exclusively** candied honey, as it would be very difficult for me to sell melted honey."

The granulation of honey has been a stumbling block in the way of the sales, in this country, because the public has been accustomed to liquid honey. The beekeepers are at fault in not trying to convince the consumers of the quality of granulated or candied honey. Sooner or later, the consumer of America must learn, as he has learned in Europe, that granulated honey is pure and often of better quality than liquid honey, which may have been heated to prevent granulation or to melt it.

There are, indeed, cases when pure honey of good quality remains liquid, but these are the exception, not the rule, in our changeable climate.

Granulated honey is much safer to ship, with less danger of leakage and loss than liquid honey. A great deal of worry and annoyance would be avoided if granulated honey was accepted at its par value, on the American market (as it will sooner or later be), instead of being rejected as impure by the uninformed consumers.

### Dummies vs. Division Boards

The Bee World establishes a difference between a dummy and a division board, as follows:

"Correctly speaking, a dummy is more or less a replica in wood of an even frame with comb. It is exactly of the same outside dimensions and thickness, and is meant to replace the latter. A true dummy, to be strictly correct, should be double-walled, but this form of accessory hive furniture does not exist in numbers on the market, except in the developed form of the Doolittle feeder, being usually replaced by a board of equal external linear measurements.

"A division board, on the other hand, should be of such shape and dimensions as to be capable of insertion between and parallel to the combs in the same way as a dummy, at the same time being capable of complete division of the hive chamber in which it is inserted.

"It will be seen, therefore, that a dummy permits of the creation of a bee space in the same manner as a frame comb does; whereas a division board entirely obliterates such a space by being made to touch the internal surfaces of the front and back walls of the hive, in addition to the floor board, when employed for the brood chamber, as is usually the case."

This is a clear and rational classification and description of the two implements. We might add that the average dummy sold by dealers is a very thin board, the use of which appears to be confined to giving opportunity for the handling of the frames, after its removal from the hive. It is of no use to concentrate the heat, in reducing the number of frames for a small swarm, since a dry comb is about as efficient as a non-conductor. But the division board, which fits at both ends, against the walls of the hive, prevents the circulation of air and effectually confines the heat produced by the bees, even if it does not fit down against the bottom board.

Those who have tried division boards are not usually in favor of a full depth board, but prefer a bee passage at the lower end, to avoid crushing bees in manipulations and also to permit bees which may accidentally find themselves behind it to return to the cluster. Warm and dry material, such as forest leaves, or possibly chaff packed in a light sack, may be used behind the division board, in winter, when bees are confined on a less number of combs than the usual quota.

We make the ends of a division board to fit snugly, while it may be easily loosened from the ordinary amount of propolis used by the bees, in the following manner:

Cut the division board a full half inch shorter than the inside length of the hive. Then nail upon each end of it a round cushion made of painted cloth with some soft material beneath it, which may be easily loosened, by a slight jar, from the walls of the hive. Such division boards prove very efficient in keeping up the warmth of a small cluster, in wide and spacious brood chambers.

### The Netherlands Bee

Having read, at different times, in the British Bee Journal and in other places, the praise of the Netherlands bee, the editor concludes that it is well to place before our readers, in this number, the statement of a Netherlands beekeeper, in praise of this bee.

Looking upon it in an impartial manner, we readily detect that the bees of Netherlands differ little if any from the common black bee of the continent; that their prolificness cannot be very great, since the skeps in which they are kept are so very exiguous that their swarms do not average more than two pounds. A study of the map also shows us that there are no mountains between Holland and Germany; therefore, nothing to prevent the uniformity of the black bee.

If nomadic beekeeping is advantageous to the bees ,causing them to become more active, through transportation to and from special crop regions, then the Italo-American bees of the United States, which are kept in much larger hives, with more inducements to the prolificness of queens, and in many cases shipped back and forth to take advantage of extra crops, and exposed to rigorous winters, should be and undoubtedly are very superior to the bees of Holland.

In view of the necessity of importation of bees into the devastated regions from somewhere, the bees of the Netherlands will probably prove quite desirable, for that little country is only a few hours' ride, on the railroad, from the scenes of destruction of the late war. If the beekeepers of northern France and Belgium secure swarms from Netherlands and improve the stock by the insertion of a few hundred American-Italian queens, they will probably have better bees than ever before. So let us volunteer to send them a few queens of good stock, the coming summer, to help them out.

### An International Bee Magazine

"The Bee World," an international monthly, edited by Dr. Abushady, at Benson, Oxon, England, made its bow to the public with its June number. It is interesting, and if it fulfills its program, will prove of use, for there has not been an international bee magazine since the disappearance of Edouard Bertrand's "Revue Internationale," published in Geneva years ago. "The Bee World" began its international life by giving extracts from 12 bee magazines, all, however, being publications in the English language. We wish the new magazine success.

### Macedonian Beekeeping

The article on uses of honey and wax in Macedonia, of Mr. Tabusteau, translated from L'Apiculteur, and published in the American Bee Journal for October, appears to have interested a great many readers. We had written him, before the publication of the article, to ask whether he could supply us with some Macedonian photos, referring to beekeeping in that country. His letter, received too late, enclosed 2 pictures, which we publish on page 380:

"Ste Eulalie, France, Aug. 26, 1919.

"Dear Mr. Dadant: I am very happy to comply with your request, and authorize you to publish what I wrote for L'Apiculteur. I do not wish any pay, but am desirous to please you, for I have not forgotten the honor of your visit in Bordeaux in 1913. I enclose the only two photos which I have on the matter. They represent, 1st, a small skep apiary in Macedonia; 2nd, the apiary of the School of Agriculture of Sedes, near Salonica. You will see, by the poster in the picture, that your name is known even there, the hives in that Macedonian apiary being Dadant hives.

"Accept my best wishes,

"M. TABUSTEAU."

### Death of Joseph Theiler

Joseph Theiler, of Rosenberg, near Zug, Switzerland, died August 21. Mr. Theiler was the owner of the most interesting bee museum in existence. This museum is well enough known to be mentioned in the tourist guides of Switzerland, and we visited it in 1913. An account of this visit was given in the American Bee Journal of August, 1914.

### Criticism

We do not wish to be considered infallible in experience, in theory, or in practice. If we did, we would surely make a failure of what we undertake. We live and learn from day to day and our true friend is the man who shows us a better implement than the one we use or a better method to keep our bees, to winter them, to prepare them for the honey crop, or to dispose of that crop.

So we need criticism, each of us. But it must be judicious and kindly criticism, written with the view of making an improvement in what we practice. Some men are backward in telling what they have found out, and need to be urged; while others are ever ready to find fault without considering that their way may not suit the conditions, because their circumstances are different.

But our true friend is he who calls our attention to a defect in an implement or to a weak spot in an argument, who does it kindly and with the sole purpose of helping progress.

So, dear reader, when at any time you have a way which you consider better than the methods published, no matter in what detail of beekeeping, let us have it.

It may not prove of value because of different conditions of climate, or crops, or other circumstances. It may have been tried and discarded. But even if, for some reason, it cannot be used, no harm will be done. "Many mickles make a muckle," and your contribution, if ever so little, should be brought forward to help if possible in the building up of the industry.

### Bees and Orchards In Holland

In the British Bee Journal of August 21, "Centurion" writes of his being in Holland and visiting beekeepers. He writes: "Whereas, 15 or 20 years ago, the beekeeper had to pay to be allowed to place his bees in orchards, nowadays not only the fruit growers let the hives in free, but often pay a small fee for them to be put in their orchards This change, whereby the apiarist is relieved of paying for the use of the orchard, and sometimes becomes payee, is due to the government leaflets which have impressed the fruit growers the great value of the bee for cross-pollinizing the flowers."

The world is surely growing in knowledge and our industry is getting recognition everywhere.

### An Extractor Worth While

Calling upon E. E. Coveyou, at Petoskey, I saw in his honey-room an extractor of sufficient capacity to take and extract, at one time, the honey of 64 Langstroth frames, or 128 shallow extracting frames. And the beauty of it is that the frames are slowly reversed, as they are placed in baskets which slowly revolve inside of the machine, so that both sides are extracted without any change of motion. This machine is patented. It has cost Mr. Coveyou several years of work and experimentation, but now appears to be a success. The only objectionable feature is the cost of the machine, which will be, I am told, about $300.

### Foulbrood

An article on foulbrood, written in the French language, by our editor, for the Swiss "Bulletin D'Apiculture," was so well received that the Swiss editor republished it in pamphlet form. It has since been copied by several bee publications, among which we will name the Algerian annual "Nahhla" and "L'Abeille" of Quebec. Our thanks are extended to our contemporaries for this honor.

# COMB HONEY PRODUCTION IN COLORADO

## Glimpses of Some of America's Extensive Beekeepers, Their Localities and Methods---By Frank C. Pellett

COLORADO is a magic word to the summer tourist. The spell of her mighty mountains, the lure of her trout streams and the joy of motoring over her many good roads, attract thousands of vacationists during the heated months of summer. Colorado's mountain parks are rapidly becoming the playground of the nation. Fortunate is the man whose daily work is amid such surroundings. Some of the best beekeeping territory in the State is along the eastern foothills of the Rockies, from Denver north to Ft. Collins.

It was my pleasure to visit several well-known beekeepers of this region during the month of August, just when the honeyflow was on and conditions were most favorable. Prospects had not been favorable early in the season, and it was feared that the crop would be short. A turn for the better set everybody to hustling on the supers and honey was piling up at a great rate at the time of my visit. Several days were spent with the beekeepers, in their regular work in the apiary, in order to note any difference in practice due to local conditions. There are few localities where comb honey is still produced on the scale of Eastern Colorado. The men visited are experts who know their business and who are making money. While their methods differ widely, in some respects, from those practiced in the East, I would hesitate to question the judgment of such men that these methods are best for their locality. In the East we find that good winter protection is very desirable, if not essential. In Colorado few beekeepers provide anything except plenty of stores and a good windbreak. Most of them are agreed that a windbreak is very desirable. I found several who are experimenting with winter packing, but no one was quite ready to say that the results justify the extra cost. While the nights of winter are cold, there is almost constant sunshine during the day and the periods when the bees are unable to fly are short. Under these conditions most of the colonies come through the winter, although sometimes considerably weakened.

Herman Rauchfuss has several winter cases in each of his apiaries. He has built them substantially with plenty of packing and there is no question but that the bees come through in fine shape in them. Although he expects to continue their use for some time and give them an opportunity to demonstrate their value, he is not yet convinced that they are worth the extra cost. I failed to find a single beekeeper, in this section, who is a warm advocate of winter protection such as we think necessary further east. There is unquestionably a great difference in conditions, yet to the outsider it would seem that some extra protection would relieve the bees of a heavy tax in generating heat during the cold nights.

A man who is prejudiced in favor of extracted honey production and an advocate of the large hive, gets something of a jolt when he finds so many men doing things in a big way with the 8-frame hive and who object to anything larger. It is readily apparent that the large hive is unsuited to comb honey production, while the small hive could be used for extracted honey without serious inconvenience. However, in most localities the production of comb honey on an extensive scale has been abandoned in favor of extracted honey and probably will not again be resumed. The market during the wartime period has favored the extracted honey producer and the general impression is that it will continue to do so. It may be that so many will turn to extracted honey that the demand for comb honey cannot be met and that those who continue to produce it will profit by their persistence. While present prices make comb honey profitable there is not as much difference in price as the extra effort necessary to produce a fine article would justify.

Herman Rauchfuss is probably the most extensive comb-honey producer in Colorado at the present time.

Herman Rauchfuss combines his manipulation for swarm control with the making of increase, thus doing away with one serious objection to the small hive. He winters in two stories with a large reserve supply of honey. A sufficient supply is insured to carry the bees through the uncertain period of spring and, with two stories for brood rearing, he has in effect a large hive during the brood-rearing period. His main flow is from alfalfa and comes in August. At the beginning of the first honeyflow his two-story colonies will usu-

Herman Rauchfuss produces comb honey in outyards quite successfully.

Harry Crawford, a well-known comb-honey man of Colorado.

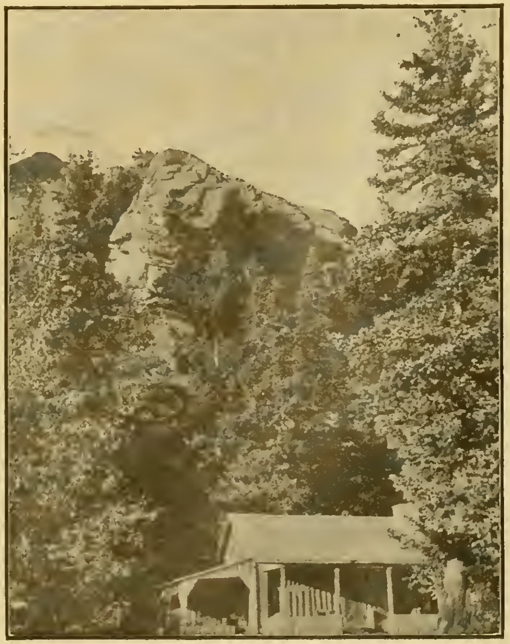
ally be full of brood and honey. A flight hole is provided in the upper hive body. This is lifted off and a comb-honey super set in its place on the lower hive body. On top of this comb-honey super is placed a honey board with the escape hole covered with queen-excluding zinc. The upper hive body is then replaced on top of the original hive with the super between. There is then an opportunity for the bees to pass back and forth between the two compartments, but the small opening through the escape hole covered with excluding zinc does not facilitate free movement. The bees soon use the flight hole in the upper body freely. At the end of eight or nine days the division containing the laying queen is removed to a new stand and all queen-cells cut from the queenless portion. A virgin queen is given to the colony remaining on the old stand. If he has been too busy to rear a sufficient number of young queens, he usually finds enough ripe cells to supply one to each new division. In this way it is easy to keep down swarming till the beginning of the main flow and also to build up the new colonies in plenty of time for it. He sometimes finds it necessary to give the new divisions a second story for brood rearing, in advance of the principal flow, later removing it, somewhat after the plan followed by Dr. Miller.

This method of making increase in advance of the honey flow would not be practical in the clover region where it is difficult to get the bees up to sufficient strength in time for the flow. This season Colorado beekeepers have enjoyed a good flow from the third cutting of alfalfa, coming late in August and running into September.

Rauchfuss makes a practice of placing full depth hive bodies over his weak or moderate strength colonies. In this way he secures a considerable amount of honey in brood combs. This is not extracted, but kept for reserve to make sure that all colonies are well supplied. He calls attention to the fact that many comb-honey producers lose their best colonies every year because the honey is all stored in the supers, leaving the hive body for brood. When the honey is removed the amount left in the one hive body of an 8-frame hive is not sufficient and the bees die before spring for want of stores. His plan of wintering all colonies in two stories, with a large reserve supply of honey, avoids this danger.

Herman Rauchfuss is probably the most extensive comb-honey producer in Colorado at the present time, having about 1,800 colonies in thirteen yards. It requires expert management to run so many bees for comb-honey and there are few men who might not get some good pointers from a man of such wide experience. He has one apiary, in a protected situation in the Platte Canyon, which is used principally for the production of bees. Full depth bodies are given them for storage of honey, and this honey is used in turn for building up other yards. In this apiary swarms issue early, sometimes so early that snow storms occur later. He has had several swarms there as early as May 1. On one side of this apiary is the Platte river, which furnishes excellent trout fishing; on the other side is a beaver dam. It is needless to say that visitors find much of interest besides the bees in visiting this apiary.

Until he sold his bees last spring, A. J. McCarty was probably the most extensive comb-honey man in Colorado. McCarty sold 2,200 colonies and leased the rest, and is taking a well-earned vacation. However, he is not content and will probably get back to the bees another year. When I visited at his home in Longmont, I found him a very agreeable chap and a live one, when discussing bees in general. He was exceedingly modest about his own success, however, and when it was proposed to tell something of his methods and experiences, he made a counter proposition, that we go with Prof. Spangler to his cabin in the mountains and spend the night up there. This was too good a chance to miss, and the invitation was eagerly accepted. Prof. Spangler has been a teacher in the Longmont schools for many years. Back east he would be considered an extensive beekeeper, with his three hundred colonies. He has a cabin about thirty miles from Longmont, not far from Long's Peak. It is a wonderful drive along the little stream that winds up between the high mountains on each side, and no more interesting scenery is to be found. If this was a publication devoted to travel, instead of bees, that trip to the Spangler cabin in McCarty's big White car,



D. W. Spangler's cabin in the mountains.

would furnish an abundance of material for a feature article. A trout stream runs within about thirty feet of the cabin door and but a few rods further up it is dammed by a colony of beavers, who make their home there. It is not far to the home of Enos A. Mills, the naturalist whose writings have attracted much attention to the wild life of the region.

At Bloomfield lives Harry Crawford, who has made beekeeping an exclusive business for 28 years. He is, accordingly, one of the pioneers at making an exclusive livelihood from bees. He has about 600 colonies of bees and produced 900 cases of comb honey last year, besides several thousand pounds of extracted honey. He has a winter home at Long Beach, Calif., where he has gone for fourteen years to spend the winter months.

I was especially interested in Crawford's packing house, which is situated on one of the main roads to the mountains. His attractive window stops many a tourist who, after buying a small amount of honey to use in camp, becomes a permanent customer after he has returned home. He sold last season as high as $178 worth of honey in a single day to tourists who happened along and were stopped by the sign and the honey display in the window. As is shown in the picture, the house is well painted and fixed up as nicely as a dwelling. This is certainly an effective example of the value of advertising to the passing trade.

## Money From Beestings

A STORY has been going the rounds of the newspapers to the effect that an eastern woman is keeping bees for the money to be made from the formic acid extracted from their stingers. It has long been known that formic acid is present in the sting of the bee and similar stories have appeared in print before. This particular news item, which we copied from a newspaper clipping in our October number, has attracted more than the usual attention. Thomas Forrest, of Hammond, Louisiana, was the first to bring it to our notice, with the request that the facts be given through the American Bee Journal.

A letter of enquiry to the Rochester Germicide Company brings the information that while formic acid was formerly secured in a small way from red ants, it is made now in large quantities by a chemical process from carbon, hydrogen, and oxygen. The Rosebreugh Chemical Corporation, of Syracuse, N. Y., was the first to make it in the United States from the raw material, it having been formerly imported from Germany. We can find no record that the sting of the honeybee was ever utilized in any commercial way.

The beaver dam behind the apiary.

## The Prevention of Foulbrood

By A. Z. Abushady

Late Assistant in the Bacteriological Department, St. George's Hospital; Webb Scholar in Bacteriology, University of London.

BOTH classes of foulbrood are infectious, and both are caused by sporing bacilli. The American disease is due to **Bacillus larvæ,** whilst the European infection is caused by **Bacillus Pluton.** The morphological characters and other features of these organisms do not interest the practical apiarist. It will suffice for him to know that in the early stages of both diseases, these infecting organisms are present in their negative of non-sporing forms, whilst in the later stages of both infections, resisting spores replace the ordinary bacilli. It is helpful, also, to know, before drawing any plan of preventive procedures, that the bee food is the principal medium for the dissemination of both diseases; that although the tissues of the larvæ are the media par excellence for the growth of both organisms, nevertheless, adult bees may be infected with them, though not necessarily with harmful results to the latter; hence, such adult bees are capable of acting as "carriers" of the infection in more than one way; and finally, that the beekeeper himself may unwittingly be an active means of spreading the infection amongst his own bees, if he does not begin with himself in applying preventive measures.

Let us consider now, as briefly as possible, the various preventive measures that should be adopted by the apiarists of every country in combatting these infections.

**1. State Supervision.** By far this is the most important preventive measure, inasmuch as sources of infections, under such organization, are not allowed to multiply, but are immediately isolated and destroyed. The responsibility does not rest with the Government alone, but surely the success of such a supervision greatly depends on the good will and the progressive spirit of the apiarists themselves. In spite of legislative measures, they can make the scheme a success or a failure. It is also in their power (by their collective voice and unity), to induce the Government to exercise such a control. American apiarists are already enjoying such a protection; British apiarists, on the other hand, are still far from it, although they have suffered, and still suffer, from the ravages of both malignant dysentery and foulbrood.

**2. Breeding Resistant Strains.** This is another helpful factor, second in importance only to the former, if not just as important. No one with physiological knowledge will dispute its significance. The basis of success of preventive medicine, both human and veterinary, consists principally in maintaining and reasoning the natural resistance to disease. We may apply this with profit in safeguarding the health of **Apis Mellifica.** We may also judiciously apply the modern principles of eugenics in raising healthy and strong strains of bees. Splendid efforts in this direction are already a feature of American apiculture, but it is to be regretted that the effort is not complete. No trouble is being taken to study the qualities of other than two or three strains of the honeybee, whereas scientific research, on which the progress of the industry much depends, calls for the careful study of almost every sociable strain in its pure condition, and the conduction of experiments aiming at the raising, by judicious crossings, of one or more varieties of desirable bees.

**3. The Practice of Antisepsis.** The soundness of the advice regarding keeping only strong colonies of healthy bees as a protective measure against the attack or disease, seems to depend on more than one factor. In the first place, a strong colony is always far better organized than a weak one. As a result, all its members are, comparatively speaking, in a better state of welfare, and consequently in better health. Moreover, in a strong colony the queen—the mother of the colony, and the compensating element against loss of life, whatever the cause may be—is well attended to. Again, a strong colony alone can afford the strict observation of principles of sanitation within the hive. Considering that the spores of both **B. Larvæ** and **B. Pluton** are not easily destroyed, it is difficult to believe the ordinary cleaning of the combs by the bees is in itself sufficient to remove sources of infection from previously infected combs or to protect clean ones against the lodgment of a source of infection. It is possible that a thin coat of propolis or another resinous substance of some antiseptic value is in addition spread by the bees on the surfaces of the empty cells, thus rendering any remaining spores more or less harmless. This view might be offered as an explanation for the success of the Alexander-House-Miller treatment of European foulbrood, although the requeening is not an insignificant help. Should this view be acceptable, we might ourselves copy this lesson from the bees, and include antiseptic measures amongst our preventive procedures. In any case, it is only too logical to think of antiseptics and disinfectants in combating infections, irrespective of their causative organisms and of whether they are pure or mixed.

Considering that foulbrood is principally an alimentary infection of the larvæ, it is most essential to prevent the infection of the food. During brood rearing, water is much sought by the water carriers, and it is helpful to medicate it with a suitable antiseptic. No artificial pollen or syrup that has not been previously medicated with such an antiseptic should be given to the bees. In addition, it is helpful to replace the hives at least once a year by clean disinfected ones. The gentle spraying in warm weather of the flying bees in front of the hives, also of the combs with their covering bees, and of the eggs and larvæ in the cells, with a warm solution of a non-poisonous antiseptic is highly desirable for the protection of the bees against more than one infectious disease. It means trouble and expense, but it means also safety. This practice should be frequently repeated. It will thus reduce the possibility of the establishment of a serious infection to a very low minimum. Anything less than the thorough use of an antiseptic in the manner here suggested is next to valueless. An occasional spraying of the bees and the combs is merely a wasted energy. The practice should be done methodically and frequently. Let me say in this connection that, with the proper application of a suitable disinfectant, it is sheer waste to advise destroying combs infected with **B. Larvæ.**

Our next problem is to consider the choice of suitable germicides for both external and internal use, the dosage and the correct method of their application. Generally speaking, germicides may be divided into two classes—those which are poisonous and those which, comparatively speaking, are non-poisonous. Naturally our selection, as beekeepers, goes to the second class. But on further examination we find again that most of these preparations, on account of their toxicity (however small it may be in comparison with that of the first class), are decidedly unsafe for internal administration to our bees in appreciable quantities or over a long period. And when we still further examine them we find that those which appear safe unfortunately present disadvantageous features which minimize their usefulness. A watery solution of mercuric chloride is obviously unsuitable for use in the apiary because it is a deadly poison; but we are not at an advantage, so far as internal administration to the bees is concerned, with any of the germicides derived from coal tar products, although the less toxic and most potent of them could certainly be used with safety for disinfecting hives, quilts, frames, extractors and other appliances, so long as they are not intended to be immediately given to the bees. But what about hydrogen peroxide, hypochlorides and allied preparations? Unfortunately these easily decompose, and therefore are almost valueless for medicating the bee-food, though, no doubt, their solutions for immediate use (e. g., for spraying with), would be helpful. It is easy to give many illustrations to your readers testifying to these conclusions, but it is unnecessary to undertake this analysis. Almost every germicide that I know of possesses advantages and disadvantages, and the attempt to create preparations that would prove ideal for both internal as well as external antisepsis have not met, so far, with an overwhelming success. For the purpose of external antiseptis, I would suggest a universal cheap germicide such as chloride of lime, in spite of the unpleasant odor which it gives. It is suitable for disinfecting hives, but it will not do for sterilizing an extractor, because of its corrosive action on metals. A 2 per cent solution of the powder (containing about 0.8 per cent of available chlorine) or even a 1.5 per cent solution will suffice. According to Klein, chlorine, even in such a low dilution as .05 per cent, is capable of killing most bacterial spores in five minutes. It is my intention to avoid, so far as possible, for economical reasons, recommending proprietary articles. I shall be content, therefore, with recommending an alternative preparation which has an international reputation and which has ceased to be a proprietary article. I am referring to lysol, which is now manufactured in different countries by several chemical firms. A 2 per cent solution of this antiseptic is sufficiently strong for all our purposes. A remarkable advantage of it is that it acts as a soap, and thus can remove dirt from the articles under disinfection; but it is wiser (in order to insure thorough disinfection as well as to preserve the power of the germicide) to remove beforehand all organic matter by means of soap and water, soap in itself being also of some antiseptic value. Frames infected with the organisms of foulbrood should be relieved first of their dead larvæ and infected honey, then dipped in a bath of soap solution for half an hour, then in clean water for a similar period, and lastly transferred to a lysol bath (they should be placed erect in the bath)

CRAWFORD & SONS

Crawford's packing house attracts many a passing tourist who becomes a permanent customer.

in which they could be left during the night, then taken out and allowed to drain and dry. Considering that built combs are far from being cheap in value, this trouble is justified in preference to the wasteful destruction of the combs. Such a thorough treatment should remove every risk in re-utilizing those previously infected combs. On the other hand, for the purpose of internal antisepsis, it is difficult to make a happy selection. Thymol, which is a more powerful germicide than phenol, might be suggested, but unfortunately it is difficult of solution in cold water (1 in 1500), though it is fully soluble, at least comparatively speaking, in glycerine (1 in 190); still a saturated watery solution of thymol might deserve experimenting with. Reputable chemical firms which have interested themselves in progressive research on antiseptics, have naturally kept to themselves the secrets of their success, with the result that I am unable to better serve the interests of the beekeeper by recommending a non-proprietary article of recent discovery that would suit his requirement. I have already advised in the British bee press the trial of "Yadil" (chemically known as "trimethenol allylic Carbide Compound") in connection with the prevention and treatment of the Isle of Wight disease, and if I suggest here its trial for the prevention of foulbrood as indicated above, I should like to emphasize in this connection, as I have repeatedly emphasized elsewhere in connection with the prevention and treatment of malignant dysentery, that there are other factors to consider besides the use of antiseptics, and that disappointment will invariably follow from ignoring them, irrespective of whether the beekeeper is a simple novice or a great authority of half a century's experience.

M. C. Tanquary, who leaves the Kansas Agricultural College to become State Entomologist of Texas.

**To sum up**—1. as both types of foulbrood are infective, Government control and legislation are justified, and on such supervision, the first hope of the apiarists in any country in preventing the spread of this pest should be directed.

2. The breeding of comparatively immune strains of bees (apart from the general advice regarding the maintenance of none but healthy and strong colonies) is to be encouraged as well as enlarged in scope. The increase of the natural healthy resistance of the bee is an excellent germicide.

3. The use of antiseptics in an intelligent manner in combating bee infections deserves better recognition and further study.

4. These three important factors are supplementary to one another; a successful prevention or a great diminution of the incidence of foulbrood is not likely to result without their combination.

London, England.

Editorial Note: This article is interesting, since it gives the English viewpoint in contrast with the American. In England the apiaries are small and it is possible to work with a few colonies in a way that would be out of the question in our large American apiaries. There are numerous beekeepers in America who number their colonies by thousands, and the man with less than two or three hundred hives is called a small beekeeper. Even though it had been proved that treatment with drugs was practical as far as results are concerned, it would not pay us to deal with disease in that way. The English bee journals devote a large portion of their space to a discussion of drugs in the treatment of bee diseases. In America there is no prominent beekeeper who now recommends an attempt to cure any bee disease by means of drugs. Many experiments have been made with various disinfectants for the purpose of curing American foulbrood, but, so far, not one successful case has been published in this country. We agree with our correspondent that the prospect is sufficiently promising to justify further study and experiment, but would warn beginning beekeepers not to risk any but well-tried methods of dealing with foulbrood.—F. C. P.

## Some Important Changes

THE resignation of F. B. Paddock as State Entomologist of Texas to succeed F. E. Millen as State Apiarist of Iowa, has already been announced. Mr. Paddock began work in his new position at Ames, Iowa, in September. Mr. Paddock is well known to the beekeeping fraternity, and the best wishes of a host of friends go with him to the new home.

We have just received word of the appointment of M. C. Tanquary, of the Kansas Agricultural College, to the post vacated by Mr. Paddock. Mr. Tanquary is widely known through his connection with the MacMillan Arctic expedition. He spent four years in the Arctic regions and knows all the hardships as well as the attractions of ice-bound lands of the far North. When the relief ship failed to reach the party at the expected time, it fell to the lot of Tanquary to make the long journey of a thousand miles with a dog sledge over the ice to a little seaport in Greenland. From there he took passage on a boat for Copenhagen, where he engaged a relief ship to go north to rescue the little party.

Paddock has found special interest in bees for some time past and could not resist the opportunity to leave the field of general entomology for the special field of apiculture. We look for the work in Iowa to prosper under his direction.

We also feel that the Texas beekeepers are to be congratulated in the fact that the position of State Entomologist is again filled by a man who is keenly interested in beekeeping. Mr. Tanquary is at present a partner in a large line of apiaries in Western Kansas, hence knows something of the importance of commercial beekeeping. We believe that both positions are ably filled and that the interests of the beekeepers in both Iowa and Texas will be well cared for.

## Honeycomb Production

The Scientific American supplement reprints at length Dr. E. F. Bigelow's article on "How Honeybees Produce Honeycomb," which first appeared in Guide to Nature. This article, which was noted in this journal at the time it appeared, has attracted more than the usual amount of attention. Two pages of the August 16 number of the supplement were devoted to it, and more than two pages in the August 30 number.

F. B. Paddock, who resigned as State Entomologist of Texas to become State Apiarist of Iowa.

## Beekeeping in the Netherlands

By P. J. Frenay

(Translated from L'Apiculteur)

IN the Netherlands few bees from foreign countries are kept in their purity. In fact, they keep only the common bee (**apis mellifica**) which constitutes the basis of all apiaries, in France, Belgium, and in general all through Western Europe. It is incorrectly called "German bee," probably because it is similar to that of Hanover, Oldenburg, Lunebourg, etc., whose apiarists are in constant relations with those of the Netherlands.

The indigenous bee of Holland is distinguishable from its congeners of the common race by qualities sufficiently remarkable to cause many breeders to believe in the existence of a special variety, which they have called "heidebei," or "heather bee." This conception has been, in several circumstances, confirmed; as for instance, through an address of Dr. Dathe who, as early as 1830, called the attention of beekeepers to the bee of heather regions of Luneburg, Hanover, a variety of the common bee which he considered as specially interesting, through its remarkable activity in work and the fecundity of its queens; also the zoological congress of Giessen, Hesse, in which the heather bee was studied, classified it as a special variety and baptized it with the name of "apis mellifica Lehzeni," after Lehzen, the apiarist who described it.

This question of the existence of a distinct variety, is still at the present day the subject of a great many discussions, among Netherland beekeepers. It is worth while to try to get back to the origin of this variety.

Jan Swammerdam (1637-1680), a learned Hollandese naturalist to whom apiarian science is indebted for numerous and interesting observations, studied bees long before Huber. In his work, (Johannis Swammerdammii Biblia, sive historia insectorum. Leyde, Isaacum Severinum, 1737) he constantly refers to the common bees and does not appear to have been interested in varieties.

The modern Netherland writers, in their practical manuals, are unanimous in mentioning the common bee as indigenous, and say but little on the question of races. This is probably due to the fact that the local bee, by its qualities, has shown herself superior to the foreign varieties, the introduction of which was attempted at different dates.

Dr. G. A. Ootmar, alone perhaps, in his important book, "De Wonderen van het Bijenvolk" (Groningen 1916), goes into details on this subject. He recalls the fact that Theodores Clutius, of Leyde, in the little treatise entitled "Van de Bij" (1597), writes of the bee that it is small, of dark yellowish color, but not blackish; hairless, with a short abdomen. G. A. Ootmar states also that Della Rocca in his "Traite complet sur les abeilles" (Paris, 1760), states that, at that time, France imported from Holland dawn-colored bees. This race, of which there seem to be no specimens left in domesticity, was signalized by this author long before the introduction of the first Italian queens, which permits the supposition that he referred to a local race existing at that time.

Let us mention also Langstroth, who in his celebrated work, "Hive and Honey Bee," speaks of a race called "La Petite Hollandaise," which is said to be a variety of the common race.

Although the foregoing quotations do not agree well, there is no doubt that Apis mellifica is the original stock of the Netherland bee, the possible crosses with the variety mentioned by Della Rocca, or with imported bees, may have modified slightly some of the characters of the race, but they have not created a type sufficiently characteristic to permit the undoubted conclusion of the existence of a distinct variety.

The size of the workers among the different colonies shows appreciable differences; some hives are found in which the inhabitants are excessively small, while others, rarely, of a size resembling that of the Carniolan. The average type which we consider as the standard, shows a trifle larger size than the common black bee.

Since this slight difference is not really an improvement of the race, we must try to indicate why the Netherland bee is so manifestly superior to the common bee, in regard to the prolificness and precocity of the queens, the remarkable activity and rusticity of the workers, and also why they winter so well. Our opinion is that those qualities are due to the conditions of breeding and to the country's climate.

The Netherlands are formed, in the greater part, of an immense sandy plain which was conquered from the sea by the obstinate and secular work of its inhabitants. The altitude is therefore low; a portion of the country is even below the sea-level. The climate is influenced by this situation. It is essentially damp, and the presence of numerous marshes aggravates the conditions. The absence of inequalities or slopes in the land causes the country to be constantly swept by winds. The climate is so severe, the winters so long and distressing, the rains are so frequent that a national wit made the statement that in Holland one can enjoy 4 months of winter and 8 months of stormy weather.

No part of the country shows full resources of beekeeping. Although certain portions have been put in cultivation and pastures, large tracts are still uncultivated and covered with heather and pines. So the bees, having accustomed themselves to the rigors of the climate, have been subjected to nomadic beekeeping. For beekeeping here is positively nomadic.

The beekeepers of the poor sections, in which the blooming of buckwheat and heather is late, send their colonies, in March or April, to more prosperous regions, bringing them back after the bloom of the fruit trees. On the other hand, the beekeepers of the prosperous regions send their bees to the heather at the opening of this bloom, that is to say, in the first fortnight of August. Some Apiarists even move them 3 times. Those trips, of which one at least is made in the heat of summer, represent journeys of 25 to 30 kilometers (16 to 20 miles) in carts, after 100 kilometers, more or less by rail. They have helped to perpetuate the use of the straw skep, which is cheap, easily transported and stands splendidly long and unpleasant trips, when such transportation would be very expensive and dangerous for large movable-frame hives. The skeps used are of straw, 12x14 inches of inside diameter. The flight hole is at about one-third of the height.

When the colonies are located, in early spring, in a country of early bloom, the attraction of honey and pollen-bearing flowers causes them to fly in spite of unfavorable temperature. The rusticity of the race becomes accentuated by this training. The bringing in by the bees of both pollen and nectar encourages the queen to lay. This early urging every spring, necessity helping the organs, causes the queens to acquire forwardness and this quality remains.

The gathering of nectar during many months, owing to the nomadic methods, and the rigor of the climate, causing the death of many

The Netherlands bees are kept principally in small skeps.

workers, the queen must necessarily be very prolific.

From these causes flow the qualities which make the native breed distinguishable and render it a better race.

Early in May, often, the colony is already overstocked. It sends forth its swarms. These are hived in skeps similar to those of the mother colony. A good colony usually gives 2 to 4 swarms; the swarms themselves occasionally cast others, if the season is somewhat favorable.

The swarms in general do not weigh over a kilogram (2.2 pounds). Even those of a half kilogram may be accepted. Though certain of failure if they remained at the same location, their transport to the heather permits them to build up; often the last swarms succeed in storing enough for winter. The colonies which, at the end of the season, have not gained sufficient weight, are fed with denatured sugar. (A wartime provision.—translator).

The old stocks and the first swarms often reach the weight of 15 to 20 kilos (33 to 44 pounds). The colonies nursed especially in expectation of a crop may reach the weight of 25 kilos (55 pounds), and even more.

This method of cultivation presents a great disadvantage, as regards the quality of the honey produced; at the end of the season the hive containing only heather honey; harvesting, being altogether by the use of a honey press; it gives a very inferior product.

For this reason, many Hollandese apiarists have placed honey production in the background and have established themselves as "fabricants" of colonies. Very expert in the matter, acquainted usually with the handling of bees and immovable comb skeps, helped by the ownership of a very rustic race, and early and prolific queens, they succeed in obtaining a first-class product. The proof of it is in the extensive export commerce which takes place in the Netherlands, sending thousands of populated skeps every year to England and Germany. The apiarists of the neighboring countries have been able to appreciate the superiority of the Netherland bee; they introduce it regularly in their countries as an agent of regeneration for weakened apiaries, threatened or suffering with contagious diseases, or degenerated through years of consanguinity.

Small skep apiary in Macedonia.

Unluckily, bees thus produced retain a great propensity for swarming, and for this reason are not fit for use in large movable hives. However, the training of a few generations and careful selection eliminates this fault in great part. It takes several years of patience; but the results are encouraging, for the bee thus managed gradually loses her tendency to swarm, while retaining her other qualities.

The movable-frame apiarist, therefore, should protect himself, if he wishes to buy such bees. If he cannot secure large swarms produced from movable-frame hives, he should at least make sure that the skeps sold to him are inhabited by carefully selected colonies.

On the whole, the Netherland bee is a common bee slightly larger than the average. Her main qualities are rusticity and activity of the workers and prolificness and precocity of the queens. They are little aggressive. They usually build straight, regular combs. The cells, not being filled too full, the honey does not touch the cappings, which gives the sealed comb a whitish tint and a very pleasing appearance, even when it contains dark honey.

Apiary at School of Agriculture of Seles

Their introduction in an apiary cannot fail to be advantageous. Their value is the greater because no contagious disease has prevailed in Holland. Foulbrood, especially, is unknown there, in the native apiaries. When, at different times, German beekeepers brought there colonies suffering from the disease, the General Government, which effectually protects beekeeping, took measures so strenuous (destruction by fire of every contaminated apiary, bees, tools, clothing and everything that might be suspected of contamination) that the disease never spread. Since 1914, all trade with Germany having ceased, not a single case has been pointed out.

Eysden, Netherlands.

## More Short Courses

THE Bureau of Entomology in cooperation with the Extension Service of the several States will conduct extension short courses for commercial beekeepers this fall as follows:

Boise, Idaho, November 3-8.
North Yakima, Wash., November 10-15.
Davis, Calif., November 17-22.
Fresno, Calif., November 24-29.
Riverside, Calif, December 1-6.
San Diego, Calif., December 8-13.
San Antonio, Tex., December 15-20.

These courses will, in a general way, be like those given last winter in California, New York, Indiana, Iowa and Minnesota, and like the Chautauqua recently held at Madison, Wis. Messrs. Phillips, Demuth and Sturtevant, of the Bureau, will assist in these meetings and the remaining time will be occupied by local beekeepers and local extension men. In Washington, Mr. H. A. Scullen, Special Field Agent of the Bureau, will assist.

The general plan of the course is for Messrs. Phillips and Demuth to discuss the care of bees throughout the year, giving the behavior of the bees and the application of this to beekeeping practice. On Wednesday afternoon, Mr. Sturtevant begins a series of lectures on disease, ending Saturday morning with a discussion of treatment. Mr. Sturtevant will have laboratory equipment for examining samples, and beekeepers are invited to bring samples of diseased brood. Further particulars may be obtained by addressing the State Extension Director at Pullman, Wash., Berkeley, Calif., and College Station, Texas. These courses are, of course, free.

## Making a Start With Bees

By Morley Pettit

A CORRESPONDENT writes that on account of lung trouble he has been advised to take up beekeeping. He wishes advice as to best locations in Ontario, and the capital necessary to give a return of $1,500 per year in a normal year. "In any case, what would be the most advisable course to follow?"

There are very few spots in Ontario where farming is successful and beekeeping is not. In fact, in looking over a district, we usually note the general appearance of prosperity or otherwise of the farms and judge accordingly. The soil is the first consideration. Any good farming district with soil not too heavy, and particularly not too light, will give good returns to a good beekeeper. The only other consideration from the standpoint of honey production is to avoid crowding beekeepers who are already occupying the district. In considering this matter one must look to the future and allow for expansion. If a $1,500 income is to be the goal, the two or three apiaries necessary can be placed in desirable locations almost anywhere in Ontario; but if ambitions are liable to expand with the business greater care will have to be exercised. The only way is to learn of a place where one would like to live, then go and look it over. Then try another until satisfied.

A good beekeeper expects at least 57 per cent annual income on his capital investment, exclusive of real estate. Now hold on! We are not profiteers, any more than any other skilled workers with comparatively small investment in tools. That is all the bees and equipment are, for without skill and experience they are a very uncertain investment.

By far your best plan, if circumstances permit, would be to live for whatever wage you can get with a successful beekeeper for one of two seasons. This would give you an experience that would cost you years and great expense to get in any other way. Another plan would be to buy a fully equipped apiary of 75 to 100 colonies and hire an experienced beekeeper to spend one day in the week teaching you. You will easily see that the latter plan would involve greater chances of success or failure. The plan has been worked with the best of results, but the beginners involved were real good sports, and that is one of the prime requisites of success in beekeeping.

Georgetown, Ont.

## Shipping Bees in Refrigerator Cars

"I helped prepare five carloads of bees, of from five to seven hundred colonies each, which were shipped into Utah and Idaho. I left Colton, Calif., with the fifth car, which was the first car they shipped in a refrigerator, under ice, to Oasis, Utah. There were about 525 colonies, some of which had from 5 to 7 frames of brood and a strong force of old bees. These were the ones we had run for orange honey and split up after the flow was over.

"They came through in fine shape and started to work at once on the sweet clover and alfalfa and are building up in great shape. Just a week ago they shipped me another car of 425 colonies, so now I have 950 to look after, with two young lads of 17 years to assist me."

The shipping of bees in refrigerator cars has passed the experimental stage and has been found an assured method of shipping bees through the heated desert sections of the Western States, where, under ordinary methods a heavy loss of worker bees, and especially of brood, was sure to occur.

(Western Honey Bee, Aug., 1919.)

# BEEKEEPERS BY THE WAY

## A Booster for Sweet Clover

For 25 years or more, R. A. Morgan, of Vermillion, S. Dak., has persistently boosted for sweet clover as a forage plant. In season and out of season he has insisted that more sweet clover would make a more prosperous agriculture. When sweet clover was thought to be a weed and it was regarded as a crime to spread the seed, he began his campaign. Sweet clover reaches its highest development in the secretion of nectar in the region from the Missouri river valley, westward. Wherever there is a large acreage of sweet clover in the plains region, we find good beekeeping territory. While Morgan has never been an extensive beekeeper, he has kept bees since the days when he lived near Adam Grimm, in Wisconsin, and became impressed with the great possibilities of the industry. He was among the first to appreciate the possibilities of sweet clover for the beekeeper. When he became convinced that the plant had a place as a farm crop, also, he began a campaign to introduce it to every part of South Dakota.

Morgan, of South Dakota

When the writer had occasion to mention Mr. Morgan's name in a letter to a State official of South Dakota, the latter replied that everybody worth while in that State knew Morgan. As editor of the Bee Department of the Dakota Farmer, he has done much for the development of beekeeping in the Missouri valley. There are few areas where sweet clover is better appreciated than in the territory where the Dakota Farmer circulates. Much of the credit for this condition is due to Morgan's tireless efforts. The pleasing thing about it is that nearly every man who has been induced to plant sweet clover as a farm crop is enthusiastic in its praise. To espouse an unpopular but worthy subject and to win over his public is an enterprise worthy of any man. We feel that Morgan is to be congratulated on his success in popularizing sweet clover in the Middle West.

## Caging Queens

By W. Griffiths, Silkmore, England

REFERRING to Dr. Miller's reply to "Ohio," in the August number of the American Bee Journal, "Caging Queens," Mrs. Saint, a first-class expert of the British Beekeepers' Association and a member of the Staffordshire Beekeepers' Association, has had an Ital-queen from Signor Piana, of Italy, in a cage for six weeks. She had occasion to introduce this queen to a strong stock which was certainly queenless, but had a super on. She removed the super temporarily, opened out the brood frames slightly and placed the queen cage over the space, having previously removed the cardboard from over the candy, then replacing the super. Six weeks later she removed the super and was very much surprised to find the queen still in the cage. All the candy was gone and in the space under the cage there was a lovely new comb extending to the floor of the hive. This was full of brood in all stages, as was also the adjoining comb. The queen was then relieved by removing the perforated tin, and was accepted by the bees. Now, for some reason or other, this queen refused to leave the cage; not the worker bees' fault, for they had evidently fed her and carried her eggs down into the combs, thus bearing out in every detail your answer to "Ohio." This queen was one of the number imported from Italy by the Food Production Department in connection with the re-stocking scheme, and thus was in the cage between 7 and 8 weeks.

(This is a very interesting observation, since there is only one other alternative in explanation, and that would be if the queen had gone out of the cage to lay and back again. That is less likely than the carrying of the eggs and caring for them as fast as dropped by her. It seems to us that this is another argument against the assertion that bees are "reflex machines."—Editor.)

## Beekeepers of Two States Hold Meeting in Omaha

Members of the club receiving instruction in the apiary of H C. Cook, of Omaha

MEMBERS of the Douglas County, Nebraska, and Pottawatomie County, Iowa, Honey Producers' Association, joined on Saturday, September 6, in an educational meeting and a social good time gathering at the summer home of Mr. W. A. Jenkins, at Carter Lake Club, Omaha. Mr. H. C. Cook, President of the Douglas County Association, opened the meeting with a talk on the various features of beekeeping. Prof. Myron H. Swank, Professor of Entomology at the State College, and also Secretary of the Nebraska Honey Producers' Association, gave an inspiring talk.

Prof. W. H. Brokaw, Director of Extension in Nebraska, talked on the value of meetings of this nature and expressed the hope that the Extension Department might employ a bee specialist in the near future. He also discussed the value of boys' and girls' club work in the State.

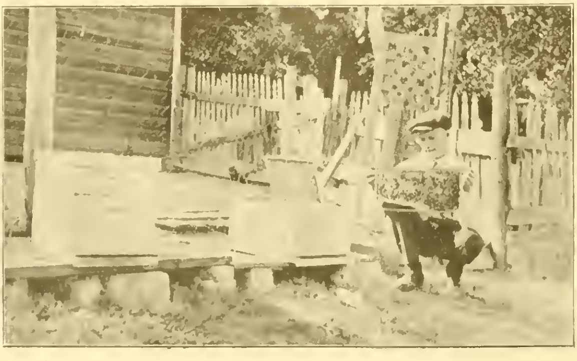
Mr. E. W. Atkins, Specialist in Bee Culture in Iowa, was the principal speaker of the day. He gave a demonstration in the beeyard of Mr. Jenkins, where he opened up several hives, explaining how to handle bees, how to detect foulbrood, and incidentally giving the bees a chance to sting several of the spectators. Dr. Atkins also gave a very interesting and full discussion of the methods of wintering bees.

Another speaker was Mr. Otto Timm, who related his experiences and observations on a recent trip he had through the Rocky Mountain district.

County Agent Maxwell gave a report of the Boys' and Girls' Beekeeping Club of Douglas County. Mr. Maxwell was assisted by Mr. Cook, of Omaha, and Mr. Timm, of Bennington. Several boys between the ages of 10 and 18 years began the work June 5, with one frame of brood, bees and queen, in a modern hive. On September 6, Mr. Cook, Dr. Atkins and Mr. Maxwell judged the contestants' work. Leonard Mangold, of Bennington, received first prize, which is a free trip to the Junior Farmers' Week at the State Farm, Lincoln. From the one-frame nucleus he produced two strong colonies of bees and 24 pounds of comb honey. The cost of his equipment to begin with was $12.50. The 24 pounds of honey would easily sell for 40 cents a pound, amounting to $9.60. The two colonies of bees are easily worth $20, making a total net income of $17.10 for the first year's work in beekeeping.

M. D. Vreeland, Florence, won second prize, which was a hive and super for comb-honey production. This was contributed by the Kretchmer Mfg. Co., Council Bluffs. T. E. Grau, Bennington, won third prize, which is one year's paid up subscription to the American Bee Journal and one year's membership in the Nebraska State and Douglas County Honey Producers' Association. Eggert Ohrt, Irvington, received fourth prize, which was a copy of Langstroth's book, "The Honey Bee," and Mr. C. Clinton Dunn, Omaha, won fifth prize, which was a copy of Dadant's "First Lessons in Beekeeping." A larger club is anticipated next year.

After the speaking, a bounteous picnic supper was spread and a general good time was enjoyed by all, and it was agreed that Mr. and Mrs. Jenkins were splendid as host and hostess.



Winner of first prize in the Douglas County Boys' and Girls' Bee Club.

## Gleanings Editor Ill

Since early boyhood, E. R. Root has suffered much from earache, his last trouble along this line being as recent as two years ago. This summer he noticed that he was gradually becoming deaf; and, on going to a specialist who had cared for him in the past, he found that the continued inflammation had finally caused an accumulation of pus in the inner ear, thus necessitating what is known in surgery as a "radical mastoid" operation. This was successfully performed on Monday, September 8.

Mr. Root was able to leave the hospital on September 17, but will have to continue treatment for some weeks to come. Fear of any complication now being remote, there is every reason for a complete recovery. It is a strange coincidence that this same trouble is what caused the early death of that able apicultural writer and authority, W. Z. Hutchinson, the founder and editor of The Beekeepers' Review.

Later.—Mr. Root is back in his office and says he is feeling fine.—Gleanings in Bee Culture.

# LEGAL SERVICE DEPARTMENT

## What Constitutes a Contract?

"Several weeks ago, in reply to an inquiry for honey, we stated to the party that we would ship him 5,000 pounds of honey, but no formal contract signed by either was drawn up, nor was any date of shipment agreed to.

Now we have advised the party that we do not care to send the honey, inasmuch as we want to feed it back to colonies of bees that are short of stores.

This party now threatens to sue us for damages for the full amount of the honey. As we see, this party is always ready to sue somebody if the slightest chance is given.

Previous to this we have been told by this party in letters over his own signature that he is not a beekeeper; that he merely buys honey as cheaply as he can, and sells it at a profit, perhaps from 20 to 40 per cent. However, at the same time he tells his customers that he is the producer of the honey, or at least he gives his customers to understand that he is the producer of this honey, and they purchase the product on this basis.

In one instance of correspondence he says: "A good bluff successfully conducted, is the battle half won."

Furthermore, he says: "All I have is a mail box, and must keep up my reputation and guarantee by demanding and delivering good products."

Realizing that this party carries on this sort of business, we decided that we would not send him any more honey. We did send him some honey two years ago, before we found out his methods.

Please advise us whether or not anyone has the right to sell honey by such pretenses.

If this party sues us for damages in not sending the honey, would we have grounds for a counter-suit? Possibly your legal department can advise us."

Wisconsin.

A proposal by letter to deliver honey, whether voluntary or in response to an invitation or inquiry, if accepted according to its terms, constitutes a contract.

The acceptance, to complete the contract must be made within a reasonable time, and must be unconditional. If the conditions of the proposal are varied in the acceptance, then they must be consented to by the proposing party.

The proposal must be sufficiently definite to identify the parties and the subject matter, and sufficiently specific in regard to the price and other terms of sale to satisfy the law of sales in general, in regard to these particulars.

Usually, where the time for performance of any act is not specified in the contract or proposal, the law will imply that a reasonable time under the circumstances is intended by the parties and the contract will not fail for that omission. So also, unless terms of credit are specified, the law will imply that the transaction is to be on a cash basis.

The fact that the proposed purchaser is engaged in disreputable or illegal business will not avoid a contract for the purchase of goods by him or to him. If, however, it could be shown that such purchaser intends by such purchase to defraud the seller or to use the goods of the particular purchase to further a general scheme to defraud whomsoever he may, the rule might be otherwise.

Under the late laws against what is commonly called "profiteering," it is possible that a contract can be avoided by showing that the purchaser intends to create a scarcity of the article on the market, or otherwise unlawfully influence prices. Precedents along this line are lacking in authority, however, and the point is not settled.

In general, the measure of damage for failure to perform a contract of sale of a marketable commodity is the difference between the contract price and the market price of the article. If the seller refuses to deliver according to the terms of his contract, the buyer may purchase at a higher price in the open market and hold his seller for the difference, if any, between what he paid and what he should have paid under his contract. On the other hand, if the buyer refuses to accept the property and pay the price of the contract, upon tender of delivery within the contract time at the contract place of delivery, the seller may sell on the open market and hold the buyer under his contract for the difference.

It is quite a common experience that this difference is less than the price of a law suit, even to the winner.

Questions as to whether particular correspondence constitutes a contract and whether such a contract is enforceable, and the like, must be measured largely by the laws of the locality of the controversy, and one should not proceed to the point of litigation without the advice of competent legal counsel.

As a general proposition it is advisable to live squarely up to the terms of a contract or agreement of any kind, whatever the cost, if it can be done. Losses suffered and sacrifices made in this way generally measure less than the loss of confidence and self-respect consequent upon a technical evasion.

The keeping of the contracts is encouraged by the law, for the stability of commerce depends largely thereon. The courts are apt to look with disfavor upon a litigant who would avoid the terms of a clear agreement to sell and deliver. Even where, without the fault of the seller, the goods of the contract are destroyed before delivery, the seller may be held in damages for failure to deliver unless provision is made against such a contingency in the contract.

# BEEKEEPING FOR WOMEN

Conducted by Miss Emma M. Wilson, Marengo, Ill.

### A Strong Colony

I have a hive of bees that will not swarm. The hive is running over with bees. I have given them a 2-story hive and two supers, and the whole thing is full. Can you tell me what to do with it? I am new to the business and can't understand what is wrong.

WISCONSIN.

You have given the colony a two-story hive and two supers, in all of which the bees are presumed to be working, and you wonder why they do not swarm. It is not hard to imagine those bees saying: "What a kind mistress we have! Other colonies are forced to swarm because so crowded for room, but our mistress has given us all the room we need, so we are saved all the bother of swarming." If you had left them with one story and one super, very likely they would have swarmed. There is a possibility, too, that the character of the bees has something to do with the case, for some colonies are more given to swarming than others. At any rate, most beekeepers would feel thankful to have bees like such a colony, quite willing to do without swarming.

### Value of Plant, Etc.

How would you go about setting a value on your plant? How much would you allow for strong, medium and weak colonies? How much for nuclei, old hives, equipment? Would you go by what you paid or what you could sell for? What is the best way to clean an extractor, and how frequently should it be done? I wish Miss Wilson would discuss this subject quite fully.

NEW JERSEY.

Your question as to valuation of a bee plant is one not easily answered. Perhaps for purposes of declaring a dividend on the investment the right thing would be to count the actual cost. But how figure on nuclei, etc., that you have not bought? Suppose you have a colony with bees enough to cover well 8 or 10 frames, another with enough for 4 frames, and a third with enough for 2 frames. If the time was spring, it is possible the second might be worth three-fourths as much as the first, and the third a third as much as the first. But if it were late fall the second might be worth a third as much as the first, and the third only a tenth. Ignorance must be the excuse for not giving a more satisfactory answer, and also for making no attempt to answer as to equipment.

To clean out an extractor the right kind of a brush is important. A dish mop with a long handle will do, but the one in use here is much better. It was gotten originally for cleaning out glass fruit jars. The brush, handle and all, is about 20 inches long, the brush part being 8 inches long, round and made of bristles. The long handle allows one to reach to the bottom of the extractor, and the brush is small enough in diameter to go anywhere around or inside the baskets. As soon as extracting is over, wash the extractor thoroughly with cold water, using the brush to get off all the bits of wax. Then scald with boiling water, again using the brush. Drain off the water and set in the sun to dry. Cover with heavy muslin cover to keep out dust, and it is all ready to use the next time it is wanted. The one washing at the close of the season is enough here, if the extractor is kept perfectly covered between extractings.

---

### Cellar Wintering

I have been reading about Dr. Miller in the American Magazine. I'll soon be 16, but I've already decided what I'm going to do when I'm grown, and that is to raise horses, hogs and bees. So I was naturally very much interested in what was said concerning bees. I suppose by this time you are wondering what I want. Well, it's this: It mentions that bees cannot stand cold weather. So you place them in the cellar and heat it artificially. What temperature do you heat this place? You see when I start out I want to profit by what's been found out before me. You would laugh if you could see the amount of stuff I have collected. But I hope to put it to good use soon.

HELEN COULSON.

Very careful experiments by Dr. Phillips, the man in charge of the interests of beekeepers at Washington, have shown that a temperature of about 57 degrees in the hive is what the bees like best for good wintering. Of course, one cannot always keep the temperature of a cellar at a given point, and there are a good many cellars where it sometimes reaches the freezing point. That will do if it is only occasionally and for a short time. But a continued freezing temperature would not do at all. Some means should be used to keep the temperature not below 50 degrees, although bees have wintered well at 45.

Instead of having to keep the cellar warm enough, the effort may be to keep it cool enough, if there is a furnace in the cellar. Then in some way enough cool air must be let into the cellar, without letting in any light, to keep the temperature somewhere from 50 to 55, perhaps occasionally running up to 60.

Now, if you think you know just how to run a bee cellar successfully, it may be as well to tell you that as far south as you are you should hardly winter bees in a cellar at all. At Hamilton, Ill., the home of the American Bee Journal, the Dadants have decided it is better to winter bees outdoors. They are a little north of the parallel of 40 degrees. You are a little south of it. So it's pretty plainly outdoors for your bees.

You are very wise to read up in advance about bees, and you should have Dadant's Langstroth or some other good text-book to study. Then, as soon as you can get them, start in with not more than two colonies of bees to practice with.

---

### Ants—Bees Not Working

On a super I noticed a number of ants between outside and inside cover, also that the bees had completely covered the little square space in inside cover, which is screen wire, with propolis. I removed that, thinking it would give them more air. Did I do wrong? Do you think they had filled the screen with propolis to keep the ants out?

I looked at the bees again, July 29, expecting to find the super filled or at least find them busy in it, but to my surprise they were not working at all.

Would the ants hinder from working? Could it be that they have no queen?

Where can I obtain a good breeding queen, and which stock would you advice, the three-banded or the Golden Italians.

What is the value of an apiary of about 100 colonies of Italians and hybrids in 10-frame hives and an extra hive for each? The colonies are mostly all strong. Would like to have your recipe for queen cage candy.

KANSAS.

You are referred to the advertisements of the American Bee Journal for obtaining good queens. as all of them are supposed to be reliable. The three-banded Italians are generally preferred.

The question as to what you can realize from an apiary of 100 colonies, is one that no one can really answer. It is a good deal as is the case with almost any business that can be mentioned. Some merchants make a fortune, some make a failure. Something depends on the locality. One location may be good and another poor, so that the same beekeeper would make three times as much in one location as in another. Very much depends on the individual. One of experience may do well where a green hand would fail. A beekeeper full of energy may do three times as well as a lazy one. It is a possibility— a possibility, mind you,—that an able beekeeper in a good year might average 200 pounds from each of 100 colonies. If he should sell that honey at 25 cents a pound he would get $5000 for his crop. Then it is possible that the harvest might be an entire failure the next year, leaving the beekeeper out of pocket the amount he would have to pay for feed.

Now after thus evading any direct answer so far, it may be well to give a quotation from Productive Beekeeping, by Frank C. Pellett. The experienced and able editor of that book says, page 17: "After gathering the average results from a number of beekeepers who have kept bees for many years, it seems safe to place the average return in the average locality at five dollars per colony in the hands of expert beekeeper." That, of course, would make $500 from 100 colonies. But at the high prices of the last two years that figure might be doubled.

To make queen candy, take best quality of extracted honey; heat but not boil, and stir into it all the pulverized white sugar (not confectioner's sugar with starch in it) it will take; then work in all the sugar you can by kneading with the hands. Let stand two or three days, and again knead in all the sugar you can.

# DR. MILLER'S ANSWERS

### Doctor Miller to Have a Rest

Readers of this department will please note that Doctor Miller is not as well as usual and refrain from sending letters direct to him for the present. The editors will do their best to answer such questions as are sent to the American Bee Journal until such time as Dr. Miller is able to resume his work. Although it will be a disappointment to many of our readers to find their questions unanswered by the good Doctor, we must remember that he is eighty-eight years of age, and few men have been able to carry on their work without interruption to such a ripe old age. He is certainly entitled to a vacation, and we are hopeful that he will soon be quite himself again.

All questions to be answered should be mailed direct to this office until further notice.

---

### Stings

I had a horse that got into my apiary and got stung very badly and died. What could I have done for treatment in this case. Is there anything I could have used to ease the pain?

NEW JERSEY.

**Answer.**—I'm afraid I cannot help you much. The first thing, of course, is to get the horse away from the bees, preferably into a dark stable. It might be worth while to scrape off the bees with a curry-comb to get rid of some bees that are burrowing in the hair but have not yet stung. I have read of covering the horse with a very wet sheet to ease the pain, which at least would do no harm.

### Swarm Control

What do you think of the plan of swarm control outlined by F. R. Smythe, of Cincinnati, Ohio, in the August issue of the American Bee Journal? It has occurred to me that the bees would raise a young queen in the side hive, or start queen-cells, and those in the present hive would swarm out with the old queen. Do you think there is any advantage in this plan over leaving the two hive-bodies one on top of the other? IOWA.

Answer.—I find it difficult to understand the article in question found on page 266 of the August number. I think, however, that the main thing is that every 10 to 14 days the brood is taken from the brood-chamber and put into an adjoining hive, there being communication between the hives, the removed combs being replaced by combs that contain no unsealed brood. In effect this is the same as using the Demaree plan every 10 to 14 days, and should be effective in preventing swarming. The only question is whether it is easier to have this hive-body at the side or on top, and unless it can be shown to be easier having it at the side, there can hardly be any advantage in the proposed change. Cells would no doubt be started, as you suggest, but there might be no swarming. At any rate the cells could be killed at each change.

### Queens—Hives—Kodaks

1. Do you advise me to breed from a hybrid queen whose progeny works on red clover after a wet spell when the corolla tubes are long? Her bees also gathered surplus last year when the others almost starved.

2. Which hive would you prefer the 10-frame story and a half hive, or the 13-frame hive, run for extracted honey?

3. How do you fasten queen-cells to a nursery frame?

4. I am thinking about buying a kodak. What kind do you advise me to get for bee pictures?

5. What was the number of the kodak used for pictures in "Fifty Years Among the Bees?"

6. How were Figs. 48, 49 and 52 taken? Did you have to use a flashlight? VIRGINIA.

Answers.—1. If you have much red clover it might be well to breed partly, at least, from the red-clover queen, even though she be hybrid.

2. Hard to say; perhaps the 13-frame.

3. Just lay the cell on its side in the compartment, and it will be all right.

4. The Eastman kodak A 1 does good work, and there may be others just as good.

5. It was Kodak A 1. I think is cost $12, but would be higher now.

6. No, those were time exposures.

### Feeding

When feeding bees warm sugar (cane) syrup in proper proportions, immediately after feeding, a good many dead bees are carried from the hive. In pressing these between the fingers they disgorge the syrup they have eaten. I am using the Alexander feeder and I am feeding my bees in daytime. Up to date I have found no solution. MICHIGAN.

Answer.—I think the thing you mention is more common than generally supposed, and I don't know how to account for it. It would seem that there should be no quarreling among the bees of the same colony working upon feed to which no other bees have access, yet I know it sometimes happens, without knowing why.

### Increase

As my bees had no inclination to swarm this year, I would like to make increase the next season and have been wondering if following plan would be safe, or if I would only be sacrificing queens:

1. Divide strong colony about the 20th of May, raising half above (5 frames) over excluder, putting sheet over the lower five frames of brood, completing isolation as much as possible without interfering with free intercourse with above super, to which I would introduce a laying queen.

2. Would both stories build up in time for clover flow, which begins about July 1? CANADA.

Answer.—If understand correctly, you mean to let the two parts remain separated by the excluder till clover harvest. I'm afraid in too many cases you would find one of the queens missing.

### Bees Leave Hive

I had a colony of black bees which I Italianized. Later the queen and all the bees left the hive, leaving behind both brood and eggs. Can you tell me what made them leave and will this hive of combs do for bees again next spring? NORTH CAROLINA.

Answer.—It is possible the bees deserted the hive because lacking honey or pollen, or both. This sometimes happens.

The combs will be all right for a swarm next year provided "worms" do not destroy them in the meantime. But you cannot depend on keeping moths out by keeping the hive closed, for the eggs are there already. Fumigate the combs, and then again two weeks later, and then you may trust to keeping the hive closed tight.

### Balling Queens

In the latter days of July as I was carrying two frames of brood which I had cut out of an old box hive, to give to the colony which I had transferred. I noticed a swarm passing over. I used a method I had found effective before and got them to cluster on a small peach tree about eight feet from the ground. Using the two frames of brood in the hive to hold them I proceeded to get them into their new quarters. The queen did not go into the hive so I placed her on the frames. Immediately she was balled. I released her from the balling bees and dipped her in honey and placed her on one of the frames of brood and closed the hive. She was missing the next day, and in due time five cells were capped over on the transferred brood. They killed that queen and I introduced another and the colony will go into winter in good shape. It was evidently an absconding swarm, as the queen was a layer. Inspectors were busy treating for American foulbrood and swarms were busy moving out. The puzzler to me is, why did they ball the queen. An answer in the American Bee Journal will be appreciated. KANSAS.

Answer.—You placed the queen on the frames, and in doing so you may have given her a strange odor to which the bees objected. Maybe that's the right answer and maybe it isn't.

### Moving Bees

I have a hive of bees which is now within about fifteen feet of the line which will have to be traversed by horses in doing some excavating which I contemplate doing early next spring. The bees are Italian bees. Will there be danger of the horses working so close to the hive? There is another place one hundred feet away to which I can move the hive if necessary. Would it not be best to move the hive during the winter season by taking it bodily from its present place? ILLINOIS.

Answer.—There would be danger of the bees stinging the horses, especially if they face towards the passage of the team and there are no obstructions, such as trees or brush, in the way. You might build a tight board fence in front of the hive. But it would probably be preferable to move them as you suggest. Better do it soon, so they may learn the new place before cold weather. If you move them on a cold day, there is a possibility of many of them being lost at their first flight. Move them soon, in the morning of a good day for them to fly. Disturb them thoroughly, so they may know that something is wrong. When you release them, put a slanting board in front of the entrance so that they may notice at once that something has been changed. They will then be more apt to recognize the place and come back to it. If they are thoroughly disturbed, very few will fail to return to the new place, since they will have taken notice of the change. More bees are lost, likely, when the hive is moved 100 feet or less than when moved several miles, out of the range of their flight.

### Foulbrood

1 My dad has cut down many bee-trees, and he says he has found them and their brood all healthy. Now, how is it, that when you take the bees out of the trees and put them into modern up-to-date hives, they take the disease?

2. Do you think putting the diseased hives into hot lime water would kill the disease? CALIFORNIA.

Answers.—1. If your dad had transferred the bees from the log to the movable-frame hive fifty years ago and had kept them without a trace of disease until two or three years ago, would he still accuse the movable-frame hive of being the cause of the disease?

2. There is a much quicker way to treat the hives than a bath of quicklime; it is to paint the inside of them with a little coal oil and set fire to them, allowing them to burn only a few seconds. Still better is to borrow a gasoline torch from a tinner and throw a blaze on every part of the wood, so as to singe it. But lime will probably do, if you prefer that way.

### Moths

Will you please tell me what I can do about moths cutting up my drawn comb? I extracted about the first of September and put my supers with drawn comb in storeroom upstairs, in my house. Nothing else in the room. A week later I looked them over and found some big and some small wax moths cutting up my drawn combs. I killed as many as I could find. MINNESOTA.

Answer.—Either use brimstone wicks, that you can buy from the druggist, and burn a piece about 3 inches each way, in a crock or clay vessel, under the combs, in a closed room. This should kill not only the moths, but the flies in the room. If the room is too large you should use more brimstone. Or you can also use carbon-disulphide, but this explodes if you bring a light near it. Dip a piece of rag in carbon-disulphide and lay it over the combs, closing up the super. It will evaporate and kill the moths. You should repeat the dose in a couple of weeks to kill the hatched eggs.

### Wiring—Hive Roofs

1. This season I wired a few frames (Dadant) with the regular number of horizontal wires and with one perpendicular wire. This wire passes through a small hole in the upper bar and is secured to a small nail beside the hole. This wire makes a turn around each horizontal wire and is then fastened to the lower bar. This seems to wholly prevent foundation from sagging down. What is wrong with this simple scheme? I can't see what it is, but I know there is something, or else you and the Dadants would use it.

2. I would like to ask the Dadants what they would think about using surplus foundation in the extracting frames and wiring the frames? If my bees use any of the wax that is in light brood foundation in making the cells it is such a small amount as to be unnoticeable. I have scraped the cells off of some combs that were built on light brood and the foundation looks just the same as when put in the frame, and I think it would weigh as much, or more.

3. In the back of Dadant's catalog, in that picture of one of your out-yards, what are those things laying on top of each hive? WISCONSIN.

Answers.—1. That method is all right. Each man has his own way, and yours is good.

2. We have never used thin surplus foundation in extracting frames, but it would probably do if it is wired. The electric wiring tool would be excellent for this.

3. Roofs, to protect the center of the cap from the sun and rain. They are made of rough lumber and those in the picture are rather smaller than the average.

### Miscellaneous

1. Do you believe that bees produce wax in the average clover flow in an involuntary manner?
2. If one has two-thirds of the necessary combs to hold his crop, how much honey will it cost him to draw the other third? Extracted honey being produced and full sheets used.
3. Do you know of any objection to the use of sappy yellow pine for shallow supers and frames? Some of the sap yellow pine being lighter than cyprus, and nearly as light as white pine.
4. Do you believe that one pound of sugar syrup, made two to one, is the equivalent of one poun of good honey for winter food?
5. Do you believe that well-ripened clover honey should stand a few days in open tanks before being canned and sealed? I had some sour, and a beekeeper of long experience said it was because it had been sealed in cans within a few hours after being extracted. (I believe he is wrong.) OHIO.

Answers.—1. It is quite probable that bees produce more or less wax involuntarily, when they are compelled to remain filled with honey for days. Field bees produce but little wax if they are able to unload their honey sac at each trip.

2. I don't know. That is a question which is more or less speculative, as much depends upon crop conditions.

3. Sappy yellow pine is all right, where it can be used without splitting and where it is not exposed to moisture.

4. Yes, very nearly.

5. If it is *well-ripened* there is no need of its being kept in open tanks. But was this well-ripened? If not, standing in an open tank in a warm, dry spot, would have tended to improve it.

### Clipping Queens

1. Would you advise cropping a queen's wings to prevent her absconding with a swarm where the apiarist has to be absent part of the time? If so, would you crop one or both wings, and how much would you clip off.
2. Would her wings ever grow back normal again?
3. Wouldn't the queen, after having her wings cropped, crawl out on the ground with her swarm, and would she be likely to enter an empty hive if one was placed 6 or 8 feet away, and in front of the parenthive?
4. On September 11 I hived a nice swarm of bees. Do you think they will make enough honey to sustain them till spring? MISSOURI.

Answers.—1 Yes. One wing is sufficient.

2. No, they never grow again.

3. Usually when the queen is on the ground, a number of bees accompany her and try to protect her. She might enter an empty hive, but would not be likely to do so, unless some of her bees directed her in that direction.

4. That is a question that you are better able than anyone else to answer. Examine that colony, and if it does not have enough, feed it.

### Wintering—Large Hives

1. I intend to put my bees in good double-walled hives. Then put them in a shed with a roof, and north and west wall, to protect them from cold winds. Could the hives be packed row upon row upwards?
2. Would this be enough protection, considering my location, it being Milwaukee?
3. I have read articles endorsing the Jumbo Langstroth pattern. Now, I have spoken to a well-known Wisconsin beekeeper about them in regard to swarming, etc, stimulating breeding. He claims that unless a colony is quite strong in the spring, they will not breed up as fast in the Jumbo hive as in a 10-frame standard hive (regular depth.)
4. What feeder do you advise for fall feeding, for winter stores? WISCONSIN.

Answers.—1. Your proposed method looks good. You can pack your bees row upon row, but the more bees you will put in a small space, moving them from their summer stand, the more danger there will be of "drifting," that is of the bees of weak colonies joining the strong colonies. The reason is that, when they are moved they have to learn their location again, and in the excitement of the change a great many young bees go where the biggest noise is made.

2. I think so.

3. Your advisor is right. But it is probable that colonies in large hives will be stronger to begin with, in the spring, than those in smaller hives. In that case they will breed as fast or faster in the larger hives.

4. Use the Miller feeder, or any of the inverted can feeders over the brood combs.

### Starter-Cells, Etc.

1. Do bees generally build satisfactory combs in Jumbo frames with 1-inch comb foundation starters?
2. Do you think a cellar under a dwelling, brick walls, cemented on the inside and bottom, perfectly dry, temperature from 55 in early part and 40 in severest part of winter, a good place to winter bees?
3. Would packing do much good where temperature may go to 12 below zero for a few days; if so, how much would be satisfactory?
4. Is lispedeza (Japan clover) any good as a honey plant?
5. Do you think three-eighths of an inch space between frames sufficient for wintering, or would it be better to remove one frame to give room for clustering, or remove one and spread the rest farther apart? KANSAS.

Answers.—1. No; no matter what kind of frame be in use, there will almost certainly be too much drone-comb with a 1-inch starter.

2. They may do very well if that 40 degrees doesn't hold too long at a time.

3. Yes; 3 or 4 inches of packing would be a good thing, but a good cellar would probably be better.

4. I think so, but have had no experience with it.

5. That depends. If top-bars are 1⅛ wide, then ⅜-inch space between them is enough. In general, if there is only a distance of 1⅜ inches from center to center of frames, then it may be better to arrange in some way for wider spacing.

### Shade Vs. Sunshine

I have been told by some beemen that it is better for bees to be out of the sunshine in a shady place; that this was the best method; but I see that most prominent beemen have their bees out in the sunshine. Will you please advise me which is the best? ALABAMA.

Answer.—I wouldn't like to be positive about it. I have been under the impression that most beekeepers preferred the shade. In this locality, at least, the bees seem more comfortable in the shade, and I'm sure the shade is more comfortable for the beekeeper when he is working at them.

## MISCELLANEOUS NEWS ITEMS

### Western New York Beekeepers Meet

The Western New York Honey Producers' Association will meet at Genessee Hotel, in Buffalo, on Friday and Saturday, November 14 and 15. R. F. Holterman, of Ontario; George H. Rae, Cornell University, and E. Victor Underwood, of Erie Farm Bureau, are among the speakers already secured.

### Iowa Convention

As we go to press announcement is received that the annual convention of the Iowa Beekeepers' Association will be held at Des Moines on Monday and Tuesday, November 10-11. Program had not been completed at time announcement was received, but full information, together with program, will be sent to all who apply to F. B. Paddock, State Apiarist, Ames. Iowa.

### New Bee Inspector for Arizona

Arizona has a new bee inspector, appointed by Governor Thomas E. Campbell. The new man is Earl L. Matteson, of Benson, who succeeds Peter Benson, of Buckeye, resigned. Matteson is one of the biggest beemen of the State himself, being interested in the business with Charles A. Goetz.

There is still pending in the courts a pair of suits against the State Auditor for the collection of the salaries of the two last State Bee Inspectors, each of whom contend that he is entitled to the money for his salary, when there is only enough money in the fund to pay one of them.—Phoenix Republican.

### Bee Club Organized

With the organization of the Liberty Bell Bee Club in Pasco, Wash., there has been launched what is intended to become a statewide and perhaps a national institution. The corporation is planned to increase the production of honey and stimulate the saving habit and to provide an educational fund to assist worthy students in need of help in securing a higher education.

The mother apiary of the organization will be started in Pasco, the work being under the supervision of L. S. Crossland. Plans call for the raising of $2,500 capital in this country, and Mr. Crossland will guarantee 8 per cent return on the money invested. As soon as the stock has been sold other apiaries will be established at other points and the capital stock increased, eventually spreading to all parts of the State. It is provided that one-half of all earnings over and above the initial dividend shall be paid into an educational fund to be controlled and used in accordance with the by-laws of the organization.

Spokane, Wash.

## Beekeepers' Exhibit at the Chenango County Agricultural Fair

Realizing the fact that to keep the price of honey where it rightly belongs, so that the producer may secure a fair return for his labor and interest on the money invested for bees and equipment, we must increase the demand by increasing consumption, the place to start to advocate the more general use of honey is at home, so the Chenango County Beekeepers' Society staged one of the most interesting features of the Chenango County Agricultural Fair at Norwich, N. Y., August 26, 27, 28 and 29, under the direction and supervision of the society.

There was a large display of bees in observatory hives, comb and extracted honey, beeswax, cakes, cookies and doughnuts made with honey; berries and fruits preserved with honey; jams, jellies and marmalades made with honey, and a good display of apiary appliances.

The Secretary was on the job each day with a committee to answer questions, talk honey and hand out samples.

We had on display several frames of honey, that were contributed by the different members of the society, to be extracted and handed out as samples during the fair.

At different periods we would demonstrate how the combs were uncapped and the honey thrown from the combs with the extractor. The combs were displayed before and after extracting. At the same time we would explain the difference between comb and extracted honey, also the difference between extracted and strained honey.

The honey, after being extracted, was strained through cheese cloth into a specially prepared can with a small gate, the samples of honey were handed out by placing small round crackers on a small platter and about a half a teaspoon of honey deposited on each cracker. This made a very suitable and delicious sample. As fast as the samples were handed out we uncapped and extracted a new supply.

During the four days of the fair we handed out about 150 pounds of honey as samples. One day we handed out about 2,000 of Dr. Miller's leaflets, "Food Value of Honey."

We did not go to the fair to sell honey, as this season's crop in this county is nearly exhausted; we went to advertise.

One exhibitor showed a 5-pound tin pail and a 1-pound glass jar, each container costing about the same price.

He was boosting the large package claiming that it was a good family size and that it did not cost any more to sell than a 1-pound glass jar, and the consumer got the benefit of the lower price. The tin had another advantage over the glass, as there was no breakage in handling, shipping or liquefying.

Thursday was beekeepers' day and there were many practical demonstrations for the benefit of beekeepers.

While this is a county fair, it was surprising how many were present from other States, and how much interest was displayed in our exhibit and talks on honey and its uses. It was also surprising how few ever heard of extracted honey or knew how it was produced.

We feel that we have given honey a boost and have done some good advertising that will be of great benefit in helping the sale of honey in this locality, and that it will be the means of placing honey on the tables of many families that have always thought of honey as a luxury, instead of a healthful food.

CHENANGO COUNTY BEEKEEPERS' SOCIETY.

### Illinois Convention

Illinois beekeepers will meet at Springfield on December 9 and 10. Headquarters will be at the Leland Hotel. The program will be sent direct from the Secretary, J. A. Stone.

### Ontario Beekeepers to Meet

The Ontario convention will be held at the Carlsrite Hotel, in Toronto, on November 11, 12 and 13. The fruit and flower exhibition will be held at the same time, and an exhibit of honey will be combined, as in the past. An excellent program is in prospect.

### Eastern New York Meeting

The Eastern New York Beekeepers' Association will hold their twelfth annual convention in the Supervisors' room in the Albany County Court House, at Albany, N. Y., on Thursday, Nov. 20, 1919.

Prof. Geo. H. Rae, Extension Specialist in Apiculture, and other live beekeepers are expected to be present and address the meetings.

Sessions at 9:30 a. m. and 1 p. m.

STEPHEN DAVENPORT, Sec'y.
Indian Fields, N. Y.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted for three cents per word, with no discounts. No classified advertisement accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

### BEES AND QUEENS

CASH for extracted honey, white or amber, in 5 or 10-lb. cans. Send sample and say price.
T. Lang, 1572 N. Halsted St., Chicago, Ill.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger add elsewhere.
Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

THE AMERICAN BEE JOURNAL is prepared to furnish printing for beekeepers. High quality, prompt service and satisfaction. Our shop is in charge of a man who specializes in printing for the honey producer. Send for our catalog of honey labels, stationery, etc.
American Bee Journal, Hamilton, Ill.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Italian bees and queens (the kind that fill from 2 to 6 supers). Bees, $12 a colony; queens, $2 each, 6 for $11. Queens go by mail; bees by express. Order direct from this ad.
Miss Lulu Goodwin,
Mankato, Minn.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, $1; mated, $2.
C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.60; 50, $40; 100, $75.
Garden City Apiaries,
San Jose, Calif.

FOR SALE—Leather colored Italian queens, tested, June 1, $1.50; untested, $1.25; $13 a dozen.
A. W Yates,
15 Chapman St., Hartford, Conn.

"SHE SUITS ME" Italian queens, $1.15 each, from May 15 to October 15; 10 or more, $1 each.
Allen Latham, Norwichtown, Conn.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75
H. G. Dunn,
The Willows, San Jose, Calif.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

FOR SALE—100 colonies of bees, most all in new hives with Hoffman frames. Plenty of stores. Address
James Johnson,
Box 265, Pocahontas, Ark.

LEATHER and all dark colored Italian queens, when we have them, mated, $1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock.
C. W. Phelps & Son,
No. 3 Wilcox St., Binghamton, N. Y.

### HONEY AND BEESWAX

WANTED—To buy honey, comb or extracted State price, quality and how packed. Address
Paul Thomae, 1019 Ninth St., Milwaukee, Wis.

FOR SALE—New crop clover honey; put up in new 60-lb cans, 2 to the case, 25c per pound, f. o. b. here.
W. B. Crane, McComb, O.

FOR SALE—One car fine alfalfa-sweet clover extracted honey. Write me
S. J. Harris, Olathe, Colo.

FOR SALE—40 cases fine clover honey in new 60-lb cans.
Edw. A. Winkler, Joliet, Ill.

FOR SALE—200 cases comb honey in 4¼ in. square sections, 24 sections to the case, and 6 cases to the carrier; one-half white, the balance buckwheat; all for prompt shipment. Give me your prices at once.
G. L. Allen, Wysox, Pa.

FOR SALE—30,000 lbs. of very fine alfalfa-clover honey in new 60-lb cans; will sell part or all of it in car lot. If interested send 25c for sample; it will be applied on your order. Also, 20,000 lbs in 6 and 10-lb. pails, cased. Will mix a car for you.
S. F. Lawrence, Hardin. Mont.

FOR SALE—Clover and buckwheat honey in 60-lb cans, 2 per case.
Bert Smith, Romulus, N. Y.

WRITE for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job.
The Deroy Taylor Co., Newark, N. Y.

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you.
The Deroy Taylor Co.,
Newark, N. Y.

FOR SALE—Light amber honey in new 60-lb. cans. Van Wyngarden Bros., Hebron, Ind.

FOR SALE—New crop clover extracted honey, two 60-pound cans to case, 25c per pound. Buckwheat and clover mixed, about half and half, 20c per pound.
H. G. Quirin, Bellevue, Ohio.

FOR SALE—4,000 lbs. of extracted honey, mesquite blend, in new 60-lb. cans, two cans to case. Also, 1,200 lbs. same as above in half-gal. and gal. cans. Best offer takes it. F. O. B. Three Rivers, Tex.
Chas. Heim & Sons.

OUR CROP OF HONEY is now ready for shipment. It is a good grade white clover with a very small trace of basswood, almost water white. It is put up in new 60-lb. tin cans, two to the case. This honey was all produced by ourselves above queen-excluders, in nice white combs. Then combs were provided so that no honey was taken off until after the season, when it was thoroughly cured by the bees. It costs more to raise a crop of honey this way, as we do not get as much per colony, so we have to have a little more money for this fancy article than the ordinary honey on the market. Try a small order and we feel sure you will buy no other.. We can furnish at the following prices, f. o. b. Northstar: one 60-lb. can $15.50; in cases of two cans, $30 a case, in any sized orders. The crop is short this year and will not last long at these prices. We feel quite sure that the price will not be any lower, so do not be disappointed by not ordering early if you are looking for honey as good as money can buy.
D. R. Townsend, Northstar, Mich.

FOR SALE—Extracted clover and buckwheat honey. Let us quote you.
The Forest Honey Co.,
2323 S. Woodstock St., Philadelphia, Pa.

WANTED—White clover or light extracted honey. Send sample; state how honey is put up and lowest cash price delivered at Monroe; also buy beeswax.
E. B. Rosa, Monroe, Wis.

WANTED—Comb and extracted honey; send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter. D. A. Davis,
216 Greenwood, Birmingham, Mich.

WE BUY HONEY AND BEESWAX—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section and sections to a case. Extracted honey, quantity, quality, how packed, and send samples. Chas. Israel Bros. Co.,
486 Canal St., New York, N. Y.

WANTED—Honey, in light and amber grades. Send sample, stating quantity, how put up, and lowest cash price delivered in Spring Valley. Ed. Swenson, Spring Valley, Minn.

FOR SALE—15,000 pounds of fine clover and basswood honey. The best offer takes it if satisfactory. Chester E. Keister, Clarno, Wis.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St. Chicago, Ill.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W Muth Co.,
204 Walnut St., Cincinnati, Ohio.

## FOR SALE

BEELINE Honey, nature's best wild flower blend; 20 lbs. $7.50.
Lorenzo Clark, Winona Minn

FOR SALE—60 perfect worker combs in Hoffman wired frames on full sheets of comb foundation, in 6 full depth supers; price $16. Ten supers for 10-frame hives, filled with section holders for 4¼x1⅞ sections, 50c each. Edwin Bevins, Leon, Iowa.

FOR SALE—Selling out bee supplies at 50 per cent less than present prices. Write for list. Hunkel Co., Milwaukee, Wis.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

FOR SALE—300 colonies bees, with complete equipment for extracted honey; no disease here. J. O. Hallman, Helena, Ga.

CLOSING OUT SALE—An opportunity to enter another line of business has presented itself and I have decided to retire from the queen and bee business. I have probably the best outfit in Louisiana for the queen and package business, located in 3 yards in Avoyelles Parish, the best known bee section in the State. We have a live Parish Beekeepers' Association, and a State Association has recently been organized. I offer 400 colonies Italian bees, 8-frame, 2 stories, first class. Portable power extracting outfit, engine and power saw, together with supplies of all kinds on hand. This is complete and going business, profitable and ready to work. Best quality, and the outfit represents 5 years of careful painstaking effort. Business now on book for spring delivery. Delightful climate. Price $3,000. I am solvent; no forced sale. Correspondence only with those who mean business is desired. No lease or share deal considered. J. F. ARCHDEKIN,
Big Bend, La.

FOR SALE——200 new 10-frame cross style, reversible bottom-boards at 50 cents each; 200 new flat reversible covers at 60 cents each; 5,000 all-wood extracting frames at $5 per 100; 100 new Alexander feeders at 20 cents each; 150 Boardman feeders without cap or jar, at 12 cents each. All above goods are factory made and have never been used. I also have some 8 and 10-frame hives complete which space does not permit to mention here. Write
M. E. Eggers, Eau Claire, Wis.

BLACK SIBERIAN HARE—World's greatest rabbit for fur and meat. Write for information.
Siberian Fur Farm, Hamilton, Canada.

FOR SALE—Phot. of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, $1. American Bee Journal,
Hamilton, Ill.

FOR SALE—"Superior" Foundation (Weed process). Qualit and service unexcelled.
Superior Honey Co., Ogden, Utah.

## WANTED

WANTED—To buy comb honey, either amber or white. Edw. A Winkler, Joliet, Ill.

WANTED—To buy small honey extractor.
E. D. Chandler, Casa Grande, Ariz.

WANTED—Iron mortar and pestle for cracking crockery for poultry. Address
G. R. Richardson, Princeton, Ill.

WANTED—Comb and extracted honey, light and amber and clover grades.
Robert Gilkinson,
1339 Dewey Ave., Rochester, N. Y.

WANTED—Man for comb-honey production; 12 months' work. State wages expected and experience. Sunnyside Apiaries,
Fromberg, Mont.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—I have a fine location in California and want a man to associate himself with me in the beekeeping business. I have the stock of bees and equipment here in Arizona; wish to ship all to a certain point in California this fall; have an attractive proposition to offer the right man that can invest in half interest in what I have. Tell your story in first letter.
J. B. Douglas, Box 1085, Tucson, Ariz.

## SUPPLIES

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati; terms cash with order. C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

MY FEEDER—Make 'em yourself. I tell you how. Won't rust. Sample and tool postpaid, 24c. Dr. Bonney, Buck Grove, Ia.

FOR SALE—Beehives and supers. Address
Thos. Cordner, Rt. 7, Sparta, Wis.

NEW HONEY CANS—Two 5-gallon cans in a cleated-end case, direct from the factory to you at $1.20 per case, f. o. b. your station.
Edw. A. Winkler, Joliet, Ill.

SEND us a list of goods wanted and will quote you lowest prices. We are the money-saving house. Price list free. Try us.
H. S. Duby & Son, St. Anne. Ill.

## SITUATIONS

WANTED—Two experienced beemen for the season of 1920. One queen-breeder with experience, one with experience in handling bees. State age, number of years experience and wages. Also give references.
W. J. Forehand & Sons, Ft. Deposit, Ala.

## MISCELLANEOUS

FOR SALE—Remington automatic rifle, 22 calibre, excellent condition, $25; used 3 months. Will take an extractor or bees in trade.
Thos. H. Cordner, Rt. 7, Sparta, Wis.

AMERICA'S UNIQUE PUBLICATION

The Youth's Companion prints week after week the best of everything that is worth while, and for every age. No other source will give your family what The Companion furnishes, or so much for the price—less than 5 cents a week.

The Companion creates an atmosphere of loyalty to the family and to the country, of unselfishness and high purpose. It inspires, it suggests, but always entertains. It makes actual, normal life fascinating, and never panders to the trashy or worthless or worse.

No family should miss the pleasure of reading the delightful serial stories by Elsie Singmaster, Capt. Theodore G. Roberts, and others, to be published during the next year. If you subscribe at once you will receive all the extras mentioned in the following offer:

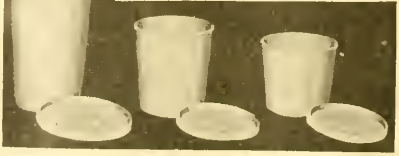
New subscribers for 1920 will receive:
1. The Youth's Companion—52 issues in 1920.
2. All remaining weekly 1919 issues.
3. The Companion Home Calendar for 1920.
All the above for $2.50.
4. McCall's Magazine for 1920, $1.00—the monthly fashion authority. Both publications for only $2.95.

THE YOUTH'S COMPANION,
Commonwealth Ave., & St. Paul St., Boston, Mass.
New Subscriptions Received at this Office.

**Seamless Paper Containers**

THE MOST PRACTICAL AND ECONOMICAL CONTAINER FOR

**Honey**



Superior to any other single service container manufactured

Write for particulars and prices

**THE SANITARY PAPER BOTTLE CO.** Sandusky, Ohio
415 Water St.

I WANT to trade honey for a good-toned guitar. Must be in good order.
Dr. A. F. Bonney, Buck Grove, Iowa.

MAKE YOUR OWN FOUNDATION and earn money making foundation for others. The simple, easy way, machine and outfit; hand, $100; electric power, $350.
Grand Haven Pattern Works,
Grand Haven, Mich.

FOR SALE—California Wonder corn for seed. A new white dent; has averaged as high as six good ears per stalk. The greatest yields of any corn known. Order now. Price, 10 pounds, $3.50.
James McKee, Riverside, Calif.

THE DOMESTIC BEEKEEPER is published "wholly in the interest of the honey producer." It will help you to produce more honey, and then help you to sell it for the best price. Published monthly, $1 per year. Send for sample copy and list of liberal clubbing offers. Address The Domestic Beekeeper, Almont, Mich.

WANTED—Beeswax, old combs and cappings to render on shares. Will pay highest market price and buy your share of the beeswax.
F. J. Rettig & Sons, Wabash, Ind.

**Statement of the Ownership, Management, Circulation, Etc.,** required by the Act of Congress of August 24, 1912, of **American Bee Journal,** published monthly at Hamilton, Illinois, for November, 1919:

STATE OF ILLINOIS, ss.
COUNTY OF HANCOCK.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared V. M. Dadant, who having been duly sworn according to law, deposes and says that she is the Business Manager of the American Bee Journal, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 448, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, associate editor, managing editor and business managers are:

Publisher, American Bee Journal, Hamilton, Ill.
Editor, C. P. Dadant, Hamilton, Ill.
Associate Editor, Frank C. Pellett, Hamilton, Ill.
Managing Editor, M. G. Dadant, Hamilton, Ill.
Business Manager, V. M. Dadaot, Hamilton, Ill.

2. That the owners are:

C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: None.

(Signed) VALENTINE DADANT.

Sworn to and subscribed before me this 16th day of October, 1919.

R. R. WALLACE Notary Public.
My commission expires September 21, 1921.

PAT. JULY 30, 1918

C.O.BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

**W** Not Get the Best---
**H** Not Save Freight---
**Y** Not take advantage of the discount offered for November's cash orders

**FOR** only the best pays. Remember, our goods are guaranteed to give you satisfaction. Your order receives prompt attention, and after it is discounted 3%—if it is received this month—it is sent to you by the shortest direct route. For we are situated in one of the best shipping centers in the West, and you can be assured that our Traffic Department will route your order to your particular advantage.

**AND** why not take advantage of our Service Department? Our expert is anxious to place himself at your service in all the phases of the work, and to make premiums for you in your Beekeeping.

**SO** order today. Or send for our catalog, and let us quote you on your order. And watch this space for important announcements.

**AND** if you order once, there will never be a "WHY."

?

**KRETCHMER MFG. CO.**
COUNCIL BLUFFS, IA.

**BEES BY THE POUND**

Booking orders now with 10 per cent down, balance just before shipping. For full remittance with order offer the following discounts: 5 per cent for October, 4 per cent for November, 3 per cent for December, 2 per cent for January. We have shipped for several seasons thousands of pounds all over the United States and Canada. Guarantee shipment to be made on time. Free Circular explains, also gives prices on Bees by Parcel Post, Nuclei, etc.

Prices F. O. B. here, by express.

1 pound package bees, $2.40 each; 25 or more, $2.16
2 pound package bees, $4.25 each; 25 or more $3 83
3 pound package bees, $6.25 each; 25 or more, $5.62
Add price of queen wanted when ordering bees

QUEENS

Untested, $1.50 each; 25 or more $1.35.
Tested, $2.50 each; 25 or more, $2.25
Select Tested, $3 each.

**NUECES COUNTY APIARIES** E. B. AULT, Prop. Calallen, Texas

# Crop and Market Report

Compiled by M. G. Dadant

Since our last report other information on the crop has come that would tend to show that it is better than anticipated. According to the Government report it seems to be a little better than last year. The fall producing sections have reported very good honey crops in these localities, which has helped bring up the average.

## HONEY PROSPECTS

A good fall crop usually indicates that the prospect for the next year will be good and this seems to be the rule over most parts of the country. Fall rains have tended to balance up the earlier drought during summer, although in many localities the clover still seems to be pretty well burned out and not showing much on the hills.

## DEMAND FOR HONEY

The demand for honey continues good and should, in view of the shortage of sugar. This demand should continue strong at least until after the holidays, as it is doubtful whether the sugar shortage will be alleviated until later on during the early spring months.

We would suggest, however, that the parties who still have honey to sell get rid of a bulk of their honey before the first of the year, while prices and demand are strong. The candy manufacturers and many other manufacturers of sweets do not seem to be returning to honey as a substitute yet. Evidently such large manufacturers were well stocked ahead of time with supplies of sugar and are not requiring such large quantities of honey.

Of course, with the individual user the occasion is different. Many are buying honey because they cannot procure sugar at all. In most localities the effect of lack of local advertising is seen. Many parties wishing sweets are unable to get any and have not had honey placed before them in a sufficiently attractive manner to warrant their buying to any extent.

## PRICES OF HONEY

In a wholesale way the prices of honey have gotten a little stiffer within the last month. Prices on the Pacific Coast, as quoted by commission merchants, now range from 1 to 2 cents per pound higher than during our last report. These prices are guaranteed against decline until November.

Although honey will remain in demand, we doubt whether there will be a large increase in price, and believe that a price of 20c for white extracted honey is not far below what is proper. In fact there are many lots still waiting buyers and which are offered from 17 to 19c per pound f. o. b. shipping point, which would make about 20c per pound f. o. b. the larger markets of the country.

## SUGAR SHORTAGE ACUTE

Beekeepers in many localities are confronted by a serious situation in being unable to secure sugar to feed their bees. Since the lifting of the ban on sugar following the close of the war, the country has used far more sugar in a period of nine months than ever before in an entire year. The coming of prohibition is making many new demands for sweets of all kinds, which promises to be permanent. While this unusual demand promises a bright future for beekeeping, in that it tends to make higher prices for honey permanent, it has made it next to impossible for beekeepers to secure needed supplies for the coming winter.

The United States Sugar Equalization Board, 111 Wall Street, New York City, stood ready to supply the beekeepers, but were unable to do so, owing to the fact that they distributed sugar only in car lots.

An arrangement has recently been made whereby for all sugar used in territory east of a line between Pittsburg and Buffalo will be supplied with cane sugar, while all territory west of that line will take beet sugar. Beekeepers who live in New York State should write to George H. Rea, Extension Division, Cornell University, Ithaca, and state the amount required to feed for winter stores. Pennsylvania beekeepers should write to Prof. J. G. Sanders, Bureau of Plant Industry, Harrisburg, in similar manner. In these two States arrangements have been made to buy in car lots and distribute from convenient points. In other Eastern States the best the beekeepers can do is to organize and purchase car lots through the United States Sugar Equalization Board, Inc., 111 Wall Street, New York City. Beekeepers living west of New York and Pennsylvania can only write direct to the beet sugar refineries, a list of which follows:

Mount Clemens, Sugar Co., Mt. Clemens, Mich.
Owosso Sugar Co., Owosso, Mich.
Michigan Sugar Co., Saginaw, Mich.
Minnesota Sugar Co., Chaska, Minn.
J. H. Laws & Co., Cincinnati, O.
D. A. White & Co., 216 Elm St., Cincinnati, O.
Ohio Sugar Co., Ottawa, O.
Toledo Sugar Co., Rossfield, O.
Continental Sugar Co., Toledo, O.
Utah-Idaho Sugar Co., Grant's Pass, Ore.
Amalgamated Beet Sugar Co., Ogden, Utah.
People's Sugar Co., Salt Lake City, Utah.
Utah-Idaho Sugar Co., Salt Lake City, Utah.
Holly Sugar Co., Boston Building, Denver, Colo.
Pope, Charles, 332 S. Michigan Ave., Chicago, Ill.
Garden City Sugar and Land Co., Garden City, Kans.
Columbia Sugar Co., Bay City, Mich.
West Bay City Sugar Co., Bay City, Mich.
Michigan Sugar Co., Crosswell, Mich.
Continental Sugar Co., Detroit, Mich.
Holland-St. Louis Sugar Co., Holland Mich.
Western Sugar Refining Co., Marine City, Mich.
Sugar Refining Co., Menominee, Mich.
Chippewa Sugar Co., 428 Grand St., Milwaukee, Wis.
U. S. Refining Co., 428 Grand St., Milwaukee, Wis.
Wisconsin Sugar Co., 428 Grand Ave., Milwaukee, Wis.
Sheridan Sugar Co., Sheridan, Wyo.
Alameda Sugar Co., 310 Samson St., San Francisco, Cal.
Spreckles Sugar Co., 60 California St., San Francisco, Cal.
Santa Anna Sugar Co., Santa Anna, Cal.

The 1919 crop of beet sugar is just now becoming available. The beekeepers should save their bees at any cost, since honey bids fair to remain high through the coming year. Only granulated sugar should be fed for winter stores, since no other sweet is safe for this purpose.

The sugar situation for beekeepers is critical over much of New England, New York, Pennsylvania, the Carolinas and Georgia. Through Ohio, Indiana, Illinois, parts of Iowa, Minnesota and Michigan, similar conditions prevail.

The beekeeper who has honey on hand from colonies free from American foulbrood should at once feed all needy colonies and not risk being able to get sugar. This season, of all times, it is important that all bees be given special care in preparation for winter. Extra packing will save stores as well as bees.

Those who find their bees short of stores and are unable to buy sugar, should prepare them for winter under the most favorable conditions and prepare to feed later when sugar is available. If there be ten pounds of stores in the hives, the bees south of the Ohio River and Mason's and Dixon's line should be able to survive until March 1, at which time there should be sugar available for feeding.

Cellar-wintered colonies should be left until as near spring as possible, if they cannot be fed before going into winter quarters. Close watch should be kept that no colonies be allowed to starve for want of stores, and when the feeding can no longer be postponed, they should be fed according to the following directions:

From Farmers' Bulletin No. 695, page 12, Department of Agriculture:

"If honey in combs is not available, the bees may be fed extracted honey; but the usual practice is to feed a thick sugar syrup made of 2 or 2½ parts of sugar to 1 part of water, by volume. To this syrup 1 ounce of tartaric acid should be added for each 40 to 60 pounds of sugar while the sugar is being heated to the boiling point to dissolve the sugar crystals. The syrup should be boiled 15 minutes. The acid helps to invert the cane sugar, thus retarding its granulation in the combs."

# MONEYCOMB

## THE ALUMINUM HONEYCOMB

### THE WAY TO GREATER PRODUCTION

We are shipping **"MONEYCOMBS"** all over the civilized world, their success is tremendous.

The question is not, can you afford them, but how can you do without them? Make your bees be efficient.

Beeswax is the most costly product of the honeybee and since wax for comb building can only be produced at the expense of many times its weight in honey it is well that the ingenuity of man has invented one of the greatest aids to profitable beekeeping—the Aluminum Honeycomb.

With **MONEYCOMB** you can:

1. **Produce more honey**
2. **Extract cleaner, no breakage**
3. **Control all disease**
4. **Raise more brood**
5. **Save loss from melting and destruction by animals and insects**

"The Aluminum Comb 'MONEYCOMB' is here to stay; its assistance to beekeepers is invaluable.
"H. B. PARKS, State Apiary Inspector of Texas."

"My honeyflow was so light the bees would not draw out the foundation. I was compelled to use aluminum combs, 'MONEYCOMBS,' for brood rearing, and they proved an unqualified success.
"GEORGE D. SHAFER, Palo Alto, Calif."

"My experience with 'MONEYCOMBS,' the aluminum honeycomb, caused me to rank it with the centrifugal extractor.
"A. Z. ABUSHADY, editor of 'Bee World' and Secretary of Apis Club, Benson, Oxon, England."

"I have conducted exhaustive experiments with 'MONEYCOMB,' the aluminum honeycomb, and can heartily recommend it as the most satisfactory honeycomb I ever used in my long experience of bee raising. PROF. WILL C. STEINBRUNN,
"Principal of Los Gatos School of Apiculture, San Jose Street, Alameda, Calif."

Our Factory is now fully equipped and your order will be shipped immediately on receipt.

Made in Langstroth or Hoffman sizes at 60c per frame, f. o. b., Pasadena. Write for prices on both shallow and Jumbo sizes. Discounts given on large orders.

Booklet "B 1" describing **"MONEYCOMBS"** mailed on request.

**ALUMINUM HONEYCOMB COMPANY**
FACTORY AND OFFICE
Chester and Colorado Streets, Pasadena, California

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| **Untested** | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $12.50 | $1.25 | $ 6.50 | $11.50 |
| **Select Untested** | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| **Tested** | 3.00 | 16.50 | 30.00 | 2.50 | 13.00 | 23.00 | 2.00 | 10.50 | 18.50 |
| **Select Tested** | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

# EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

**A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality**; **best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

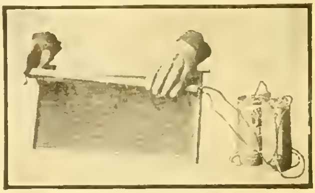
**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

# BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, $2; untested, $1.50. Price list free

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**



## ELECTRIC IMBEDDER

**Price without Batteries $1.25**

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market.

For sale by all bee supply dealers

**Dadant & Sons,** Manufacturers HAMILTON, ILL.

# BEE SUPPLIES

**Let Us Figure With You**

Get our discounts before buying Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
**142 Grand Ave., Kansas City, Mo.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**
(Please mention Am. Bee Journal when writing)

# WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**Prepare for 1920 now, and take advantage of our early order discounts and you can save money by writing us for the following reasons.**

We have a complete stock of all kinds of Standard Bee Hives and Sections, Dadant's Foundation, General Bee Supplies, Wax, Honey and Honey Containers at Newark, New York.

We have the advantage of being located in a first-class railroad center.

We have a modern up-to-date wax-rendering plant in operation.

Our new Honey Packing Department is in operation.

Come and pay our plant a visit, or write us. We are sure it will prove profitable to you.

**ADDRESS**

**THE DEROY TAYLOR CO., Newark**
**(Wayne Co.) New York.**

A NEW BEE BOOK

**by the Associate Editor of American Bee Journal**

**Beginner's Bee Book by Frank C. Pellett**

**Just issued from the press of the Lippincott Co., Philadelphia.**

Attractive cloth binding, nearly 200 pages, illustrated. Price, postpaid, $1.25.
With a years subscription to American Bee Journal, both $2.00.

Other books by the same author:—

**Productive Beekeeping,** 320 pages, a complete manual of commercial honey production. Price $1.75. With Beginner's Bee Book, both $2.75.

**Practical Queen Rearing.** 105 pages of boiled down information about all practical methods of rearing queens. Price $1.00. With Beginner's Bee Book, both $2.00.

**Our Back Door Neighbors.** A book of nature tales splendidly illustrated with photographs. Price $1.50. With Beginner's Bee Book, both $2.25.

Special price for all four books, $4.75. All four books and American Bee Journal one year, $5.50.

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

**The Diamond Match Co.**
**(APIARY DEPT.)**

**MANUFACTURERS OF**
**Beekeepers' Supplies**
**CHICO, CAL., U. S. A.**

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
**Apiary Department** **CHICO, CAL., U. S. A.**

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

**Don't stop advertising.** because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

**EAT HONEY**
**NATURE'S OWN SWEET—AIDS DIGESTION**

Price of 1,000 gummed 35c.

**American Bee Journal** **Hamilton, Illinois**

**BEST GOLDEN ITALIANS**

**BEN G. DAVIS,** SPRING HILL TENN.

## THE FOREHAND FEEDER

This is one of the greatest inventions along this line the bee world has ever known. It is a feeder that it took fifteen years to perfect. It has been in use for nearly twenty-seven years. It is a success, for,

1st. There is no cold feeder in the broodnest or on the outside to start robbing.
2nd. It does not drown or freeze the bees.
3rd. It has two uses.
4th. It is a convenient time saver. You can feed at any time.
5th. It is not an expensive feeder.
6th. It saves labor, feed and bees.
7th. It IS A GOOD FEEDER.

Write for further information.

BEE SUPPLIES—We handle everything the modern beekeeper needs. Write at once and get the big 35 per cent saving on the greatest part of our supplies. Catalog free.

PRINTING—We have a modern printing plant especially equipped to supply the requirements of the beekeeper. Our long experience and up-to-date plant enables us to give you printing of the finest quality, promptly. Write us for further information and prices.

QUEENS—Forehand's Three Bands need no recommendation. For over a quarter of a century they have been pleasing the best beekeepers throughout the world. They are the kind that are **surpassed by none, but superior to many.** They are thrifty, hardy, gentle and beautiful. Write for our special bee circular. Get your order in **now** before the rusn.

POUND BEES—Six thousand pounds is our capacity for the season of 1920. We are now booking orders. After we have booked orders for this amount no more will be received. Get your order in now. Write for circular and prices.

For over a quarter of a century we have been in the bee businesss on an extensive scale. We know the beekeepers' needs and are now in a position to fill them, it matters not what they are.

**W. J. FOREHAND & SONS, The Bee Men**

**Fort Deposit, Alabama**

CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

**EARLY ORDER DISCOUNTS WILL**

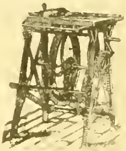
## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

**or J. W. ROUSE, Mexico, Mo.**

## BARNES' Foot-Power Machinery



Read what J. L. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**

**995 Ruby St., ROCKFORD, ILLINOIS**

## BEEKEEPER'S SUPPLIES

**Everything Required for Practical Beekeeping**

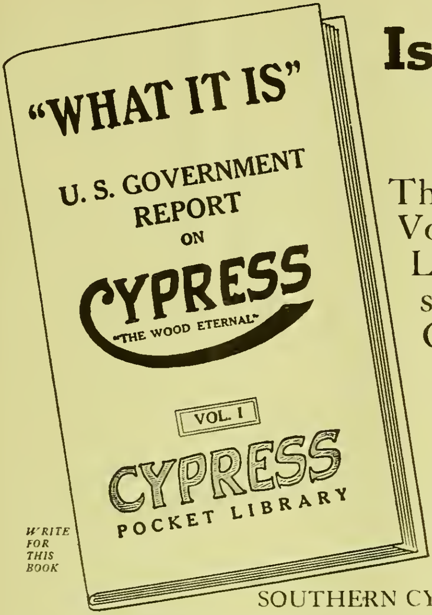
Order your supplies now and save money by taking advantage of the early order cash discount. We are prepared to take care of your business; send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and we will mail you one of our new 1920 catalogs when ready.

**AUGUST LOTZ CO.**

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**
**High Hill, Montg. Co., Mo.**



*WRITE FOR THIS BOOK*

# Is Uncle Sam's Word Good Enough?

Then Mr. Bee-man, just write for Volume I of the Cypress Pocket Library and read what our respected Uncle has to say about Cypress ("The Wood Eternal.") You'll then see why any bee-hive, or bottom or winter case not made of Cypress is not so good as it might be. 42 other volumes all free. The list is in Volume I. Write and it comes.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's If he hasn't it, *LET US KNOW IMMEDIATELY*

**HONEY** **WANTED** **HONEY**

Write us what you have to offer in extracted or comb. If comb state how packed, graded and quantity. If extracted, state how put up, mail sample and quote your lowest price. We will buy unlimited quantities if price and quality are right.

**C. H. W. Weber & Company**
**2146 Central Avenue** **CINCINNATI, OHIO**

**HONEY, HONEY, HONEY**

We shall be in the market for any quantity, both comb and extracted. Mail sample of extracted and state price asked in first letter.

**Beeswax** always in demand. Cash or in trade.

"GRIGGS SAVES YOU FREIGHT"
**TOLEDO**

June is here and the big White Honey Flow with it. Don't get short of sections and foundation, the season promises to be good.

**Honey Cans and Cases**

Order these early, a limited number of second hand cans on hand at 75c per case

**GRIGGS BROTHERS CO.**
DEPT. 24 TOLEDO, OHIO

# A GREAT NEW BOOK

—FOR—

# BEEKEEPERS

The American beekeeper has long been in need of a thorough knowledge of the honey plants of this country.

To know the sources of honey supply and the location of such sources, is indispensable to beekeeping success.

The American beekeeper is at last going to be supplied with this knowledge by the highest American authority on the subject of honey plants, Mr. John H. Lovell, scientist, author, and beekeeper.

## The Honey Plants of North America, North of Mexico, and Guide to the best Locations for Beekeeping in the United States

Is the subject of the book which Mr. Lovell has been preparing by life-long study and now about to be printed by us as his publishers and collaborators.

This new book will prove the most important contribution made to American beekeeping lore in years —literally filling "a long-felt want."

No brief description can possibly tell of the beekeeping ground covered by the author. Among the many subjects treated, will be found chapters on the "The Influence of Environment on the Secretion of Nectar," "Plants Valuable for Pollen Only," "Honeydew," "Plants of Little Value to Bee Culture." One entire part of the book will be given over to discussion of "Nectar—Its Secretion, Protection and Distribution." Another part will give the fullest and most finely illustrated description of North American honey plants ever printed.

Still another part (and perhaps the most important) will deal with the honey plants of different sections of the country and furnish a guide to the best locations for beekeeping.

All this big and valuable work for beekeepers has been done with Mr. Lovell's widely known scientific accuracy; but technical terms have been avoided, and the language used is that of the common beekeeper.

We congratulate the beekeepers of America upon the prospect of having the new aid and encouragement that this great new book will give to our beekeeping.

We are already at work upon its publication, and trust it will be off the press early in 1920.

---

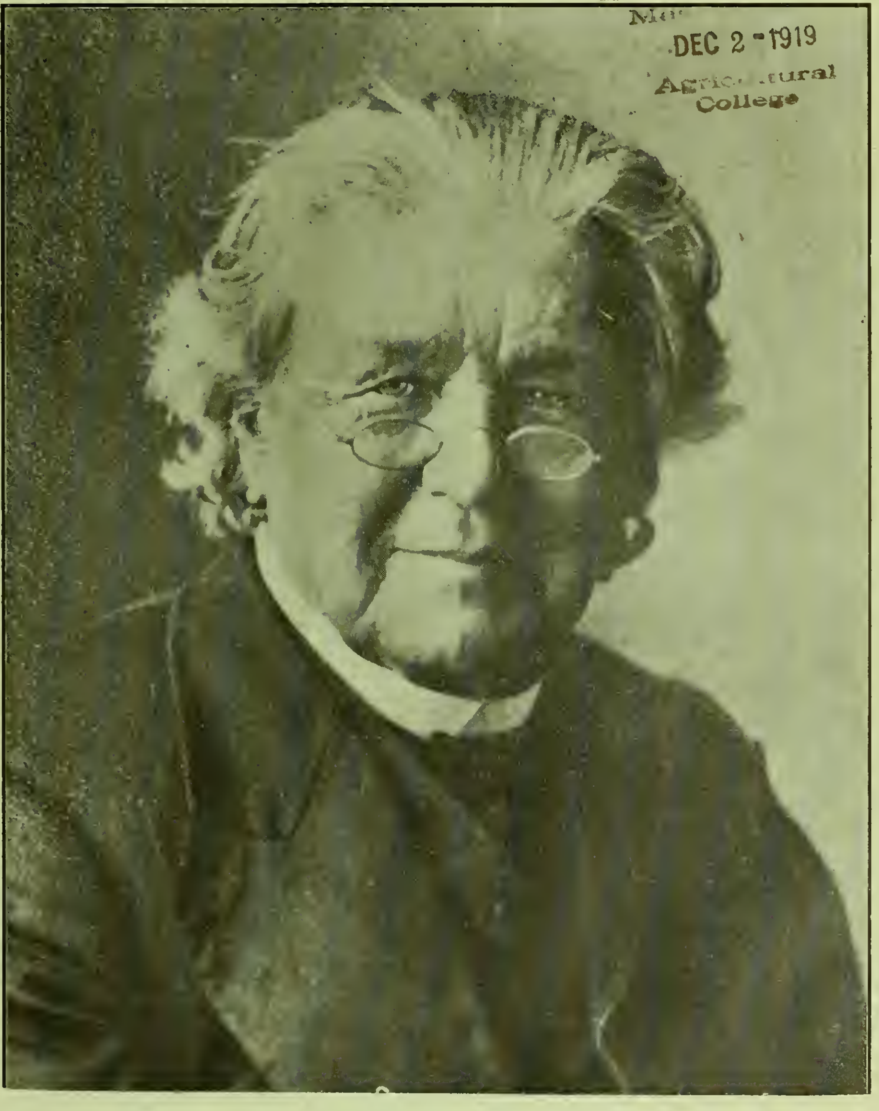
# THE A. I. ROOT CO.

MEDINA, OHIO

# AMERICAN BEE JOURNAL

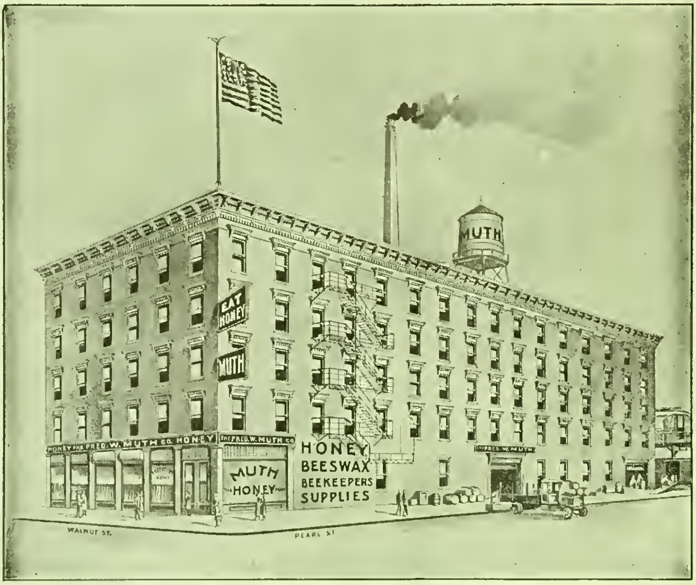
DECEMBER, 1919

LIBRA
Ma
DEC 2 - 1919
Agricultural
College



REV. L. L. LANGSTROTH, INVENTOR OF THE MOVABLE COMB HIVE. BORN DEC. 25, 1810. DIED OCT, 6, 1895.

THIS HOUSE IS YOUR HOUSE.
USE IT



EAT HONEY
MUTH
MUTH
HONEY THE FRED. W. MUTH CO. HONEY
THE FRED. W. MUTH CO.
MUTH HONEY
HONEY
BEESWAX
BEEKEEPERS
SUPPLIES
THE FRED. W. MUTH
WALNUT ST.
PEARL ST.

WHAT THIS HOUSE DOES FOR YOU

| IT BUYS | IT GIVES YOU | IT HANDLES FOR YOU |
|---|---|---|
| YOUR EXTRACTED HONEY | SERVICE | LEWIS BEEWARE |
| YOUR COMB HONEY | PRICE | ROOT'S SMOKERS AND EXTRACTORS |
| YOUR BEESWAX | QUALITY | DADANT'S FOUNDATION |
| RENDERS YOUR OLD COMB | PROMPT REMITTANCE | HONEY CONTAINERS |

☛ HONEY ☚

Send us a sample, tell us how much you have and what you want for it. We are always ready to buy. No waiting for your money when you ship to us. We remit the day your shipment arrives.

THE FRED W. MUTH CO. Pearl and Walnut Streets
CINCINNATI OHIO
"THE BUSY BEEMEN"

Four Bee Books
YOU SHOULD HAVE
IN YOUR LIBRARY

**First Lessons in Beekeeping**
By C. P. DADANT

A 175-page beginner's book, well illustrated and cloth bound.

Price $1
Mailing weight, one pound

**A Thousand Answers to Beekeeping Questions**
By C. C. MILLER

Supplements other books by answering questions not usually taken up. Cloth bound; 290 pages.

Price $1.25
Mailing weight, two pounds

**Practical Queen-Rearing**
By FRANK C. PELLETT

Gives all the modern queen-rearing methods, simply. A good book for both the scientific queen-breeder and the amateur. Cloth bound; 110 pages; illustrated.

Price $1
Mailing weight, one pound

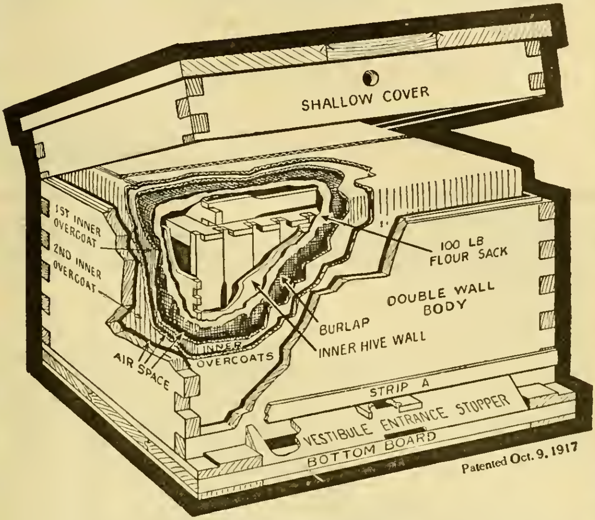
**Langstroth on the Honey Bee**
Revised by
C. P. DADANT
*"The Classic in Bee Culture"*

A full treatise on beekeeping. Cloth; 575 pages.

Price $1.50
Mailing weight, three pounds

ALL FOR SALE BY
AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

Winter Problem Solved
BY THE
Hive with an Inner Overcoat



NOW FURNISHED WITH
JUMBO DEPTH OR STANDARD HOFFMAN FRAMES

In January of this year, Mr. Pellett, the associate editor of the American Bee Journal, wrote us suggesting that we place on the market, Protection Hives with Jumbo depth frames. He stated that if we could furnish them with 1 1-2 inch spacing, that in his opinion we would have very nearly an ideal hive, and if he was again to engage in commercial honey production, this would be the hive that he would want. Numerous like requests from other bee keepers for this same equipment have been received.

We are now prepared to furnish Protection Hives with standard Hoffman frames the same as in the past, or standard Jumbo depth frames ten to the hive body, or those with 1 1-2 inch spacing nine frames to the hive body. The same size covers, bottoms and rims as used in the past will be supplied, the only difference will be in the depth of the hive body when Jumbo frame is wanted.

Standard single hive, comb or extracted honey supers or bodies in the 10 frame size, are regular equipment for Protection Hives.

Send for a new special circular of the Protection Hive which has just been issued.

TIN HONEY PACKAGES

2 lb. Friction Top Cans in cases of 24.
2 lb. Friction Top Cans in crates of 612
2½-lb. Friction Top Cans in cases of 24.
2½-lb. Friction Top Cans in crates of 450.
5-lb. Friction Top Pails in cases of 12.
5-lb. Friction Top Pails in crates of 100.
5-lb. Friction Top Pails in crates of 203.
10-lb. Friction Top Pails in cases of 6.
10-lb. Friction Top Pails in crates of 113.

SPECIAL PRICES

Crates of 100 five-pound pails, $8; crates of 200 for $15.

Crates of 100 ten-pound pails at $12.50. Sixty-pound cans, two in a case, at $1.15 per case. Shipments made from Michigan, Ohio, Illinois and Maryland factories.

A. G. WOODMAN CO.
GRAND RAPIDS, MICH., U. S. A.

**Prepare for 1920 now, and take advantage of our early order discounts and you can save money by writing us for the following reasons.**

We have a complete stock of all kinds of Standard Bee Hives and Sections, Dadant's Foundation, General Bee Supplies, Wax, Honey and Honey Containers at Newark, New York.

We have the advantage of being located in a first-class railroad center.

We have a modern up-to-date wax-rendering plant in operation.

Our new Honey Packing Department is in operation.

Come and pay our plant a visit, or write us. We are sure it will prove profitable to you.

ADDRESS

**THE DEROY TAYLOR CO., Newark**
**(Wayne Co.) New York.**

**SUPERIOR FOUNDATION AGAIN EXCELS** READ THE FOLLOWING

SUPERIOR HONEY CO.,
Ogden, Utah

Gladys, Va., R. F. D. No. 2
October 10th, 1919

Dear Sirs:
When I received your Superior Foundation the clover flow was at its best. After removing a couple of frames of brood from the center of my best colony I inserted a frame of Superior Foundation and a frame of the other make Upon opening the same colony again in the evening, about six hours later, I found that the bees had drawn out your Superior Foundation about one-eighth of an inch in the center, while the other foundation was untouched. When I next opened the hive about two days later I found that the frame of Superior Foundation had been fully drawn and some cells along the top bar had been sealed, while the frame of other foundation had some honey, but none sealed When the queen laid in the frame containing your foundation it made the most beautiful brood frame of the two I made several other tests with similar results, and consider them fair tests, as the other foundation was the same weight and freshness, being purchased this spring. I do not hesitate to say your Superior Foundation is the best foundation I have ever seen. I am yours for business,

B. E. JOHNSON

USE THE BEST. If your dealer cannot furnish you **Superior Foundation** write us for special prices.

**SUPERIOR HONEY CO., Ogden, Utah** (Manufacturers of Weed Process Foundation)

**The Diamond Match Co.**
(APIARY DEPT.)

MANUFACTURERS OF
**Beekeepers' Supplies**
CHICO, CAL., U. S. A.

**Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.**

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

**The Diamond Match Co.**
Aplary Department CHICO, CAL., U. S. A.

Read ***"THE BEEKEEPER"***

The only Canadian bee publication. Keeps beekeepers closely in touch with Apicultural conditions in Canada. It is the official organ of the Beekeepers' Associations for the three provinces—Ontario, Manitoba and New Brunswick. Beekeeping and horticulture are effectively combined to make a live, attractive and practical publication.

Price, postpaid, $1 per year
United States, $1.25 Foreign, $1.50
Send for a free sample copy

**The Horticultural Publishing Co., Ltd., Peterboro, Ontario**

**TELL WHAT YOU KNOW**

The Western Honey Bee offers cash and other prizes in a competition (ending March 1) for articles pertaining to the work of beekeeping. Try your hand; anyone can compete, whether a subscriber to the Honey Bee or not. Send for a sample copy (free) containing particulars. Address

**WESTERN HONEY BEE**
121 Temple St., Los Angeles, Calif.

# SOUTHERN BEEKEEPERS

will be glad to know that the service their increasing patronage demands has been met by the establishment of a

**LEWIS BEEWARE BRANCH HOUSE AT MEMPHIS, TENNESSEE**

Carloads of beekeeper's supplies of every description will be kept on hand in our Memphis warehouses at all times. We will make every effort to see that no beekeeper is disappointed in an effort to get "Lewis Beeware"

For 46 years southern beekeepers have been using Lewis "Beeware." We pride ourselves that their good judgment is to be met with ever-increasing facilities for them.

Correspondence may be addressed to the

10-12 S. Front Street **G. B. LEWIS COMPANY** MEMPHIS. TENN.

# TENNESSEE-BRED QUEENS

**Forty-Seven Years' Experience in Queen-Rearing**

**Breed Three-Band Italians Only**

| | *Nov. 1 to June 1* | | | *June 1 to July 1* | | | *July 1 to Nov. 1* | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 6 | 12 | 1 | 6 | 12 | 1 | 6 | 12 |
| Untested | $2.00 | $ 8.50 | $15.00 | $1.50 | $ 7.50 | $13.50 | $1.25 | $ 6.50 | $11.50 |
| Select Untested | 2.25 | 9.50 | 18.00 | 1.75 | 9.00 | 16.00 | 1.50 | 7.50 | 13.50 |
| Tested | 3.00 | 16.50 | 30.00 | 2.50 | 12.00 | 22.00 | 2.00 | 10.50 | 18.50 |
| Select Tested | 3.50 | 19.50 | 35.00 | 3.00 | 16.50 | 30.00 | 2.75 | 15.00 | 27.00 |

**Capacity of yard, 5,000 queens a year.**
**Select queen, tested for breeding, $5.**
**The very best queen, tested for breeding, $10.**

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

**JOHN M. DAVIS, Spring Hill, Tenn.**

# EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

> "I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

**A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B**

**WESTERN HONEY PRODUCERS**
**1929-1931 FOURTH STREET**
**SIOUX CITY, IOWA**

# MARSHFIELD GOODS

## BEEKEEPERS

We manufacture millions of **sections** every year that are as good as the best. The **cheapest** for the **quality; best** for the price. If you buy them once, you will buy again.

We also manufacture **hives, brood-frames, section holders** and **shipping cases.**

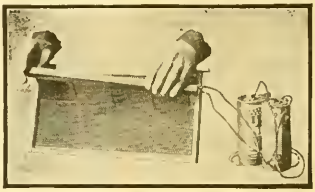
**Our Catalog is free for the asking**

**MARSHFIELD MFG. CO., Marshfield, Wis.**

# BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping boxes and 3-frame nucleus colonies.

**I. J. STRINGHAM, Glen Cove, N. Y.**
**NASSAU, CO.**



## ELECTRIC IMBEDDER

**Price without Batteries $1.25**

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market.

For sale by all bee supply dealers

**Dadant & Sons,** Manufacturers HAMILTON, ILL.

# BEE SUPPLIES

**Let Us Figure With You**

Get our discounts before buying
Largest stock in South West.

**C. C. CLEMONS BEE SUPPLY COMPANY**
**142 Grand Ave., Kansas City, Mo.**

# PORTER BEE ESCAPE SAVES HONEY TIME MONEY

PORTER
BEE ESCAPE
PATENTED

**For sale by all dealers.**
**If no dealer, write factory**
**R. & E. C. PORTER, MFRS.**
**Lewistown, Illinois, U. S. A.**

(Please mention Am. Bee Journal when writing)

Write for Price List and Booklet descriptive of

**HIGH-GRADE**
**Italian Queens**

**JAY SMITH**
**Route 3**
**Vincennes, Ind.**

# The Evolution of the Large Hive

L. L. Langstroth

¶ Previous to the time of L. L. Langstroth bees had been kept only in boxes and skeps. Langstroth saw the need of more easily handled combs. He perfected the movable frame hive, using the size frame now so commonly known.

¶ Moses Quinby, accepting the movable feature of Langstroth, was quick to see that a deeper frame would provide a more complete circle for the egg-laying queen, and would provide more honey over the brood for wintering. Yet he confined his queens and bees to a hive with only eight of the Quinby frames. He still had a relatively small hive but with the proper depth.

Moses Quinby

Charles Dadant

¶ Charles Dadant accepted the views of both Langstroth and Quinby, but experimented further with different size hives. The result of his many and varied experiments led him to the conclusion that a hive with ten Quinby frames produced strong colonies and large honey crops with a minimum of swarming.

¶ The Original Dadant Hive did not adapt itself to the use of the great amount of Langstroth equipment already in use. Moreover it was very expensive. To remedy these two drawbacks, we have evolved and now offer

## The Modified Dadant Hive

1. **Eleven frames, Langstroth length, Quinby depth**
2. **1½ inch spacing of frames for swarm control**
3. **Six-inch extracting super**
4. **Dovetailed body and regular reversible bottom and metal roof cover with inner cover**
5. **Langstroth equipment easily used in connection**

Our more than forty years experience with bees convince us that this is **the** hive for **Extracted Honey**

If you want strong colonies, large honey crops, little swarming and good wintering, we believe this is the hive for you

**Write today for descriptive booklet and prices**

**DADANT & SONS, Hamilton, Illinois**

A "BEEWARE" LINE FROM WOODS TO YOU

Your orders are our obligations and we begin their fulfillment in the woods. While you plan your Christmas gifts by the fireside, dozens of workmen are toiling in the frozen north woods for you. There they choose fine basswood and sturdy pine, to be made into "Beeware." At the factory experienced workmen cut and shape the lumber and men grown old in "Beeware" service test the product for exactness. These are some of the reasons why better beekeepers insist on Lewis "Beeware." A trial order is certain to convince any beekeeper.

LOOK FOR

BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN LEWIS WIS U.S.A.
MAKES THE FINEST

THIS USUAL MARK

You will want our forty-sixth annual catalog, to be issued soon. December orders discounted 3%. There's a distributor of "Beeware" near you.

A MERRY CHRISTMAS AND A HAPPY NEW YEAR TO YOU ALL

G. B. LEWIS COMPANY, WATERTOWN, WISCONSIN
MAKERS OF BEEWARE

AMERICAN BEE JOURNAL

VOL. LIX—NO. 12 HAMILTON, ILL., DECEMBER, 1919 MONTHLY, $1.00 A YEAR

# NECTAR AND NECTAR SECRETION

By Dr. Wm. Trelease, Botanist, University of Illinois.

THE great Swedish botanist, Linaeus, nearly two hundred years ago, basing his classification of plants on their flowers, found it necessary to name and account for all of the parts of a flower. In many cases he found structures that were neither sepals, petals, stamens nor pistils; and as these contained or were wet with a sweet fluid, he gave this the fanciful name nectar—the drink of the gods—and called the parts of the flower that produced or contained it, nectaries.

As these nectaries were different from stamens and pistils, which Linaeus recognized as the sexual organs of flowers, though they are sometimes connected with them, and as they were different from ordinary sepals and petals, though sometimes connected with them, they presented something of a question mark to the men of that day who were curious to know what the parts of a plant really are and what they do. For this reason the study of nectaries became something of a popular diversion for a generation or two; and a general idea that they are organs for secreting sugar became established; not necessarily an idea of secretion, though, for just as animals excrete various organic substances that are by-products, or waste from some of their functions, so it was thought by some students that the sugar of nectar might really be an excreted waste or surplus rather than a substance secreted because it is to become useful to the plant.

Toward the end of the Eighteenth Century a German rector, Sprengel, who seems to have found in Nature a good deal of inspiration that he failed to put over, noticed that the petals of the common German wild geranium were fringed with hairs at their bases. That was in the day before men believed in evolution, but when they did believe in a purposeful creation. Sprengel was convinced that an all-wise Creator would not have made a single hair in vain, and he set about discovering what these hairs were for, much as a sensible person seeing the governor on an engine today would try to find out what it is for. Below the break between two petals, he found a nectar gland, producing its sugary fluid; and he saw the hairs would prevent the nectar from being diluted or washed away by rain or dew. This brought him back to the original question—what nectaries and nectar are for. He got his answer to this by watching the plant and seeing that bees visited the flowers, and removed the nectar as what might be called the raw materials of the honey industry.

Honeybee on Hedge Nettle.
(Photographed by Professor C. F. Hottes).

In Sprengel's day, the general impression was not only that things have been created just as we find them, but created for our own ultimate good. So Sprengel found an answer in discovering that the hair fringe of the geranium petals protects the nectar of the flowers and so preserves it for bees to use in manufacturing honey for our breakfast table.

It is not necessary to walk down Michigan Boulevard on a windy day to realize that we belong to an initiative race. The corner grocery and the drug store show it as well as the windows of milliners and dressmakers, shoe shops and news stands, or as the sights that isue from a barber shop in a college town.

When you stop to think about it, Sprengel could hardly have had the curiosity to study out his geranium question to an answer without being spurred to look at other flowers to see if they might not have something interesting of the same sort to offer. He yielded to the impulse to look at other flowers, and he found his geranium to be a very drab specimen compared with some of the irregular and painted flowers that he studied out in the same way. He must have felt no common pride when, in 1793, he published the results of his studies, with simple but effective illustrations, under a title that meant the discovered secret of nature in the structure and fertilization of flowers.

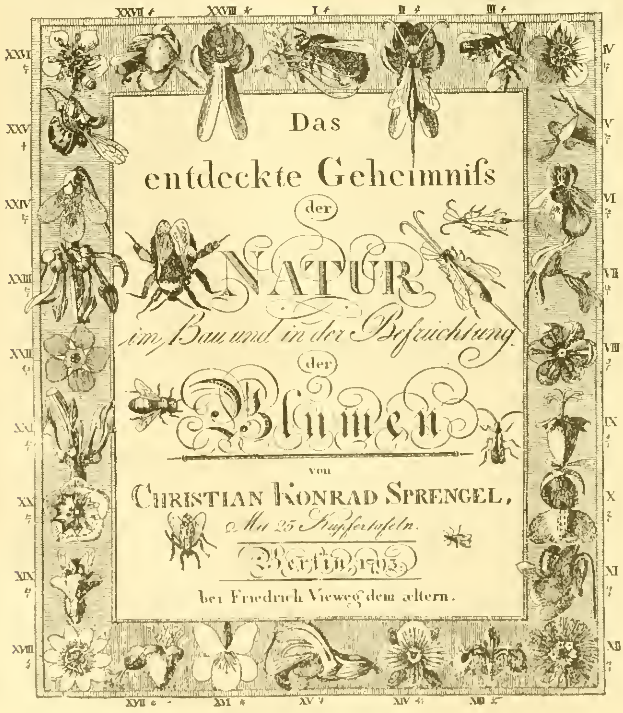
But Sprengel seems not to have been the sort of man to whom such an answer really was an answer, and he looked further. It does not seem to have taken him long to see that while gathering their own store of honey, and obviously without consciousness that they were doing anything else, the bees became dusted with pollen from geranium stamens and rubbed it off on geranium stigmas while going their rounds of the flowers. This conclusion evidently answered two questions—what the hairs are for, and what nectar is for.

Fashions run in fads and interests quite as much as in dress. Linnaeus was a great botanist; perhaps none has been greater. He not only reduced a chaotic science to order, but interested men in its study to a remarkable extent. It is rather unfairly charged against him that because his service was somewhat one-sided, those whose interest he awakened were extremely one-sided, in that they did not see or care for much in botany beyond finding, describing and classifying new plants. This was well enough worth doing; it is not finished yet, and will not be finished for many years to come; but it had become so fascinating and workable through the genius of the Swedish master that his followers seized it with eagerness, and it was a long time before a mind of original habits and impulses broke loose from the train.

The man who possessed this originality was Darwin, the author of the now universally accepted idea of organic evolution. To him has been ascribed the introduction of a new teleology into natural science recognizing that structures and functions **are,** because they are, or have been, of use—not of use to man necessarily, though man may turn them to account, but to their possessor.

This was Sprengel's conclusion as to the nectar of geranium flowers, which he found led to their fertilization. The essential difference between his way of seeing it and Darwin's is that he thought the entire mechanism had been specially made by the Creator as a means to an end, while Darwin saw in it the gradual modification of earlier structures because the new were helpful in the struggle of life and their possessors for this reason were likely to survive and pass them on to their offspring.

There is a German country saying that the honey-bee was forbidden the clover because she didn't keep Sunday. Beekeepers know that her tongue is a little too short for the honey tube of the red clover flower and that she doesn't waste time in trying to get what is out of her reach. They know, too, that some races of honey-bees really can suck the red clover nectar because they have longer tongues, and if beekeepers ever want to do it they can probably set an expert plant breeder to work at breeding a race of red clover with a tube short enough so that even the German honey-bee can get at its nectar. Natural evolution hasn't done this. Where red clover is at home bumblebees are found, and bumblebees have no difficulty in reaching its nectar much as hawk-moths get that of a moon flower which is far beyond the reach of any kind of bee. But in the South Seas, where there are no long-tongued bees, red clover finds itself as unable to set seed as the German honey-bee is to get at its nectar. Bee and flower have evolved together where both are at home, into a harmony of structure that is helpful to them both.



Das
entdeckte Geheimniſs
der
Natur
im Bau und in der Befruchtung
der
Blumen
von
Christian Konrad Sprengel,
Mit 25 Kupfertafeln.
Berlin, 1793.
bei Friedrich Vieweg dem ältern.

XXVII
XXVIII
I
II
III
IV
V
VI
VII
VIII
IX
X
XI
XII
XIII
XIV
XV
XVI
XVII
XVIII
XIX
XX
XXI
XXII
XXIII
XXIV
XXV
XXVI

Sprengel's title page.

Nothing was more suggestive to Darwin in his search for evidences of evolution—or modification through descent, than this sort of harmony of structure and habit in flowers and insects; and one of his earliest and most effective books in bringing his views to the comprehending notice of others was the dealing with the mutual relations between those freaks in flowers, the orchids, and their insect visitors.

For Sprengel's teleology, Sprengel's explanation of nectar as a means of securing fertilization was sufficient, For Darwin's teleology, it carried another question: why? The geranium flower has both stamens and pistil, standing in its middle. The one might fertilize the other just as well as not, apparently, and yet this does not happen, for the pollen-bearing anthers of the stamens drop off before the stigmas of the pistils come to maturity. The same thing may be seen on any single-flowered "geranium" in a bay window or a greenhouse, or a summer window box or flower bed (only this "geranium". does not belong to the genus **Geranium** of the botanists, but to the related African genus **Pelargonium.**

Looking for a further reason, Darwin saw a step further into the mystery when he found that these and many other flowers that ought to get on without any help are as dependent upon insects through their own failure to bring pollen and stigma together as those are in which stamens and pistils are borne in separate flowers—often on separate plants. To him, nectar and its attendants—flower fragrance, color, variegation, guards of hairs or some other structure—meant what they had meant to Sprengel, fertilization through insect aid: but they meant something more, fertilization of one flower by pollen from another flower-crossing.

And still the questions multiply. Why do not all flowers have stamens and pistil side by side. Why when they have this structure, do they not time the maturity of these essential parts so as to secure effective functioning without all the nectar machinery? In other words **Why** is crossing so commonly necessitated and provided for?

Science of every kind has been advanced by three methods; reasoning, observation, experimentation. Sprengel's answer was reached by the first two; the new answer sought by Darwin was to be obtained through the third. For eleven years he put the question direct to the plants themselves; fertilizing them by their own pollen; cross-fertilizing them; raising and re-questioning their offspring. More and stronger progeny from crossing was the answer.

The popularity that Linnaeus had given to characterizing and classifying living things, was transferred by Darwin to studying their structure and doings. Sprengel's idea fell upon barren soil, Darwin's was cultivated with care and skill.

Two men, Mueller, a German, and Delpino, an Italian, stand out most prominently among a multitude who observed and wrote and pictured the marvels of flowers and insect harmonies for a generation. All did excellent work in furnishing new details and corroborations, but Darwin had answered the question as to the what and the why of the nectar of flowers.

But there is nectar that is not produced in flowers. Look at the queer spots in the angles betwen the veins on the under side of a Catalpa leaf, when it is young, or at the little goblets on the stalk of a cherry or peach or snowball leaf, or at the pin-head spots on a trumpet-creeper or paeony calyx, and you may see glands there that secrete a sweet fluid. Bees may not care for it, but wasps or ants do. The cotton plant has such nectar glands on the outside of the cluster of bracts about each blossom, and on the back of its leaves.

In a very few cases such "extrafloral" nectar serves the same purpose as that within the flowers; but generally it does not lead to fertilization. Delpino called the nectar that leads to fertilization "nuptial" nectar, and the other "extranuptial."

In the seventies of the last century an English mining engineer, Belt, well known in the ore regions of Colorado, was marooned by his profession on a mining property in Nicaragua. Using his eyes took the place with him of tennis, or of dissipation, which is the white man's bane in the tropics. He saw that a certain sort of ants cut the leaves of trees into bits, which they take into their nests, and that roses and other introduced plants fared hard with these leaf cutters unless they were protected by aromatic oils, as various kinds of citrus leaves are, or in some other way.

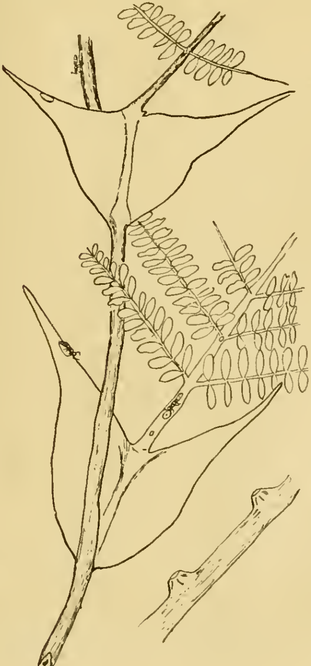
Belt did not fail to notice that the ants visit extrafloral nectaries in numbers. In the case of those on some acacias he found the ants very pugnacious. I confess that in Guatemala I have preferred, myself, to go around a bush or a grove of such acacias with their ant guards. As with Sprengel's geranium hairs, these nectaries unfolded question after question.

In Belt's case, the tips of the acacia leaflets ripen up also into little fruit-like bodies that the ants gather and take into their nests; and they make these nests in the stipules that flank each leaf and sometimes are shaped like a pair of small buffalo horns. It is an interesting undertaking to get the ant census of an acacia twig of this sort. The danger may not be as great, but it is as real and perhaps as painful as in taking the census of a mountain valley noted for moonshine traffic.

Belt drew the conclusion that extranuptial nectar, sometimes supplemented by solid food and shelter, is of use to the plant that provides it by maintaining a bodyguard of ants on plants that otherwise would risk defoliation and injury by leaf-cutters or grazing animals; much as Sprengel and Darwin found an explanation of nuptial nectar in the benefit of insect pollination of the flowers.

This is the simple story of nectar, simply told, as it has been seen by many observing and thinking men. But it is not a story free from complications. Our blue violets rarely set fruit from their showy nectar-bearing flowers; but their main reliance for seed is on flowers produced below the leaves, and these do not open, but are self-fertilized. The beautiful **Poinsettia,** with its brilliant red bracts and large cups overflowing with thick nectar, does not fruit in West Indian gardens any more than it does in our greenhouses at Christmas time. And irresistibly pugnacious as the acacia ants are, those that visit our paeonies and cassias and other plants do not usually more than protest mildly if we molest the plants that they are on.

Are the explanations of Sprengel and Darwin, and of Belt wrong? No others that are at all satisfactory have been offered.



The Guatemalan ant acacia.

When one stops to think of it, the secretion of nectar is an unusual phenomenon. Sugar is made within plants and it does not leak from them unless they have been injured. The sugar beet takes various substances out of the soil water, but it does not permit the passage of sugar into the soil water. And yet nectar, essentially sugar, is passed out of the plant, within which it was manufactured. This is because it is secreted, or excreted, through specialized glands. Everyone who grows plants in a bay window has seen young clover or grass leaves with a drop of water on their tips at some time or other. A few grains of bird seed in a flower-pot covered by a pane of glass will show this as quickly as the seedlings come up.

These drops pass out finally through pores; but they are drops of water and not nectar. If we can imagine a gland behind such a water pore, secreting sugar—letting it really get out of the cells with or into the water—we can picture a nectar gland. Such glands occur in some flowers. Some botanists believe that extranuptial nectar glands were originally water glands that have acquired the habit of secreting sugar.

This habit is a very unusual and a very peculiar one. It is not readily understood except as it may be connected with usefulness to the plant. If this usefulness is not indirect, in the ways suggested by Darwin and Belt, or otherwise, it must be direct. Water glands relieve over-pressure when absorption is high and evaporation low; in some of the calla family the water even spurts from the tips of the leaves at times. But sugar is not like water, taken in in quantity and to spare; it is manufactured, and in the case of nectar glands it is manufactured where it is secreted. Nobody has yet suggested any physiological function of plants calling for sugar safety-valves situated in the queer positions occupied by extranuptial nectar glands; and no satisfactory direct physiological explanation of the nuptial glands has been suggested.

The actual status of nectar in botanical science is about this: when it is produced in flowers, and in some cases when it is outside of them but near them, it demonstrably serves to secure cross-pollination through the aid of insects, or humming birds and their like, when the flowers are long, tubular and red, as in the trumpet creeper, the trumpet honeysuckle and the scarlet salvia. It is then "nuptial nectar." When it does not serve the plant in this way, and so is "extranuptial," it occurs in the neighborhood of the flowers, as in cotton, sweet potato, trumpet creeper and paeony, where it attracts numbers of ants, which are often very pugnacious ,and to the extent of their activities it prevents injury to the essential flower buds and flowers, especially in their early stages; or it occurs on developing leaves during the period of their greatest need. More rarely, as in the acacias, the leaves continue to secrete it through the season, so that those that are mature add to the protection of the younger leaves and the flowers and the young fruit.

That neither of these functions is served in exceptional cases and that some flowers rely on the wind for effective pollination, or have lapsed into self-fertilization; or that really pugnacious ants do not commonly frequent the extranuptial glands of most plants in temperate regions, and that some plants get along very well without such help, mark questions that will continue to stimulate observation and experiment. But nothing now known of the physiology of plants offers an alternative explanation for that which connects nectar with either pollination or defense; and until such an explanation can be found, nectar will continue to be regarded as connected indirectly with these services through insect or bird relations.

AMERICAN BEE JOURNAL
Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language. Consolidated with The National Bee Journal in 1874.

**Published monthly at Hamilton, Illinois.**

Entered as second-class matter at the postoffice at Hamilton, Illinois.

Subscription Rates—In the United States and Mexico, $1 per year; three years, $2.50; five years, $4. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

THE STAFF
C. P. Dadant ........ Editor
Frank C. Pellett ........ Associate Editor
C. C. Miller ........ Questions Department
Maurice G Dadant ........ Business Manager

(Copyright 1919, by C. P. Dadant.)

# THE EDITOR'S VIEWPOINT

## Brood in the Super

Foloppe Bros., in the "Revue Francaise d'Apiculture" report that wherever the bee-escape has failed to remove the bees, it was because of brood in the super. It appears that worker-bees will not desert brood. This is logical and may explain the rare reports of failure of a bee-escape in removing the bees from the supers. The queen's presence in the supers would have a similar effect.

## Aeroplanes for Beekeepers

In the October Gleanings, the old veteran, A. I. Root, tells of taking a short trip at Medina, in an aeroplane. Fourteen years ago there were only 3 automobiles in and around Hamilton, Ill. On the day of the armistice, 13 years later, 443 farmers' automobiles were counted in Hamilton. Who knows but in 12 or 14 years we will all (those of us still living) be riding around in aeroplanes?

## Overworking the Queens?

We don't wish to criticize the statements of other publishers on matters of theory. But there are instances when it seems necessary.

The Western Honey Bee, in its September number, page 291, quotes rather approvingly a statement by Mr. Thos. F. Cobb, in the British Bee Journal, that the "overworking" (overlaying) of the queen is the cause of lack of stamina, and therefore of the diseases that afflict the honeybee.

As we see it, the queen lays more or less, according to her capacity to develop the eggs in her ovaries as fast as the food supplied to her by the bees will allow. When her ovaries are empty she is done. Similarly when the male sperm is exhausted in her spermatheca, she lays only drone eggs. But we fail to see in what way the speed of her laying would affect her progeny. Are the chicks hatching from a prolific hen, properly fed, any weaker than those from an inactive hen, slightly fed?

All beekeepers who have watched a prolific queen at the time of her greatest egg-laying know that if she is interrupted in her work, her eggs will drop "like ripe fruit." The question for us to settle is whether we should encourage this prolificness by giving her ample room easy to reach, or reduce her laying to the capacity of a small brood-chamber.

The English beekeepers use either the small skep of straw, or the diminutive British standard movable-frame hive. This hive is reported, in the British Bee Journal of August 28, as containing only 2,400 square inches of comb surface, as against 4,800 of the Dadant-Blatt hive, which they acknowledge is the standard in many parts of Europe.

It seems strikingly evident that, if the greater or less laying of the queen has anything at all to do with the diseases of the adult bee, such as Isle-of-Wight or paralysis, the present condition of English beekeeping would indicate that the small hives, in which the queens cannot fully develop their fertility, are the ones that cause the trouble.

We kept bees for some 40 years in the large hives, larger than the average Langstroth, before we ever saw foulbrood. We saw but isolated cases of paralysis, and never anything resembling Isle-ofWight disease.

We are inclined to take the view that there would be less Isle-of-Wight disease in England if they used large hives. It seems to us much more plausible to expect strong colonies to withstand the changes of climate, the effects of mould or of moisture, than weaker ones. We see nothing unnatural or forced in the active laying of a prolific queen, when she is plentifully fed by her workers. Whenever her spermatheca or her ovaries are getting empty, it is time she should be superseded. Our American beekeepers are getting in the habit of superseding their queens at the end of the second year, to avoid any delay or inaction on their part. We believe that is right.

Let our British cousins give a fair and full trial to large hives, not singly or isolated, but in ample apiaries, as we have done. They will then be able to compare results knowingly with the small hive man.

## The British Frame

The British standard frame contains 236 square inches of comb surface. The Langstroth approximately 320. Referring to this matter, R. B. Manley writes in the British Bee Journal of August 21:

"The British standard (hive) is too small for a good strain of Italian or hybrid bees. It is weak and inconvenient, and to get room has to be tiered up too high.

"It will be found that bees winter better and increase very much more rapidly in spring on large combs. The queen will extend on a large comb when she will not move to another comb."

Right, Brother Manley, we have talked ourselves hoarse explaining this. But even your 16x10 combs are not large enough, and you would say so if you ever tried larger ones on a sufficient scale. That was our experience and many are getting awakened to that fact.

## ARE WE GOOD SAMARITANS?

### Third List, Belgian-French Relief

| | |
|---|---|
| Cash subscribed in former lists | $272.85 |
| Porter C. Ward, Allenville, Ky. | 5.00 |
| H. Christensen, Toppenish, Wash | 10.50 |
| S. Barbeau, St. Eustache, Quebec | 5.00 |
| C. E. Fowler, Hammonton, N. J. | 5.00 |
| F. E. Millen, Guelph, Ontario | 5.00 |
| I. N. Arnold, Kanola, Iowa | 5.00 |
| J. F. Diemer, Liberty, Mo. | 2.00 |
| R. E. Newcomb, Cleveland, O. | 5.00 |
| A. S. Ferry, Naugatuck, Conn. | 5.00 |
| L. Van Butsele, Collinsville, Ill. | 1.00 |
| F. W. Lesser, East Syracuse | 10.00 |
| Total cash subscription to November 9 | $331.35 |

Queens promised:

| | |
|---|---|
| Former lists | 83 |
| Ben G. Davis, Spring Hill, Tenn. | 50 |
| Hardin S. Foster, Columbia, Tenn. | 25 |
| Total number of queens promised | 158 |

Of the above number of queens, 123 are from Tennessee. Are beekeepers of Tennessee more generous than those of other States?

Additional supplies promised value $324.

Adding up these different items, we have already about $800 in value promised, and all the cash is paid in. We should readily get $5,000. This would make a donation worth while, especially when we transfer it into the sadly depreciated currency of Belgium and France. Late news indicates that France has less than half the number of bees owned a few years ago, in the undamaged regions, while the devastated areas are entirely bare.

This is the holiday month. Come on, friends, and make a little Christmas present to your brothers across the water. We will prove once more that "A friend in need is a friend indeed."

All donations will be published and the destination of the gifts will be made known as soon as arranged.

Bear in mind that, when you subscribe to charitable organizations, you are entitled to deduct the amount from your income tax report, thus lessening your tax.

### Direction Bees Fly

In the British Bee Journal, contributors discuss the direction in which bees fly. One man says they go against the wind, "presumably to have the wind in their favor when coming home." Is it not rather because the wind brings them the odor of the flowers?

### The Dadant Apiaries in 1919

A number of readers ask for a report of our bee season of 1919. Here it is:

We began the season with something over 550 colonies in 9 apiaries. There was no white clover at all. So we could not expect much of a crop. To cap the climax, the spring season was very dry. Having bees in plenty and nothing for them to do, we concluded to make some increase artificially, and raised the number of colonies to about 730. We were hoping for a fall crop of persicarias (heartsease) and Spanish needles, of which there is always a fair amount in average seasons in this section. But the drought did not permit them to develop so as to give us any hopes of a crop, and we faced the probable necessity of feeding largely for winter, when sugar was scarce and high. Not a very delightful prospect, indeed.

The Mississippi river was high during the spring months. For that reason there was more moisture than usual on the low lands which are protected by levees, for quite a great deal of water seeps through the sands, from the big stream. A visit to the low bottom lands situated from 10 to 30 miles from us convinced us that it would pay to again practice nomadic beekeeping. So some 400 colonies were moved to the bottoms. With some 240 already located near the edge of the bluffs, above the bottoms, we thus had approximately 640 colonies near immense fields of fall flowers. About 300 of them were right in the center of the bottom lands.

The bees were moved on our two large trucks capable of taking 60 of the large Dadant hives at a trip. This is where the small hives would have the advantage. But we are quite sure that their crop would have been less than that of the large hives.

The hauling was done the last of July, the bees transported an average of 30 miles. The caps and supers were carried separately, each brood-chamber being covered with a wire screen nailed on a strong wooden frame fastened on the brood-chamber with staples. The hives were closed at 4 o'clock in the morning, on cool nights, loaded and hauled at once, so as to reach the destination by 7 o'clock.

Had the colonies been as strong as is usually the case in July, the crop would have been immense. As it was, the harvest from Spanish needles, boneset, persicarias and asters was 78 barrels, or something over 40,000 pounds.

The bees are now back in their respective apiaries on the hills for the winter. Although the clover prospect is not very promising, we believe that they will do better on the hills next spring than on those low lands where there is little early bloom outside of willows and a few spring flowers.

### Do Bees Need Water in Transportation.

The late Harbison, of California, the first man to ship colonies of bees in large numbers from New York to California by way of Panama, a journey of 5,900 miles, in 1857, wrote as to the need of water by bees in transit:

"Bees do not need water in transit. The different management of bees by different parties who shipped them from New York to California, is proof in point; those who did not water or feed any during the voyage succeeded much better than those who did so regularly; this was the result as tried side by side on board the same ship."

Bees do need water, and very urgently when they have brood to feed, though they can get along some time without it.

### Attend the Meetings

Beekeepers today have more chances than at any time in the past to extend their knowledge of bees by attending meetings. Besides the regular State meetings, many counties meet, department experts conduct courses and State experts give demonstrations.

No beekeeper is so well informed but that he can glean some good from contact with other beekeepers. A single idea in practical application may save, many times over, the cost of such trips.

## A Bumblebees' Nest

By H. B. Parks

In the study of any problem one must go far afield to gather the facts that make its solution possible. In the study of the honeybee, thousands have made observations on their behavior, and hundreds have made conjectures as to the manner in which the present high specialization of the species occurred, but only the few have studied the nearly related semi-social and solitary bees with a view to find in these the steps by which the honeybee reached its present state. Most closely related to the genus **Aphis** is **Bombus**. The bumblebees resemble the hive bees in the possession of three casts, in storing pollen and honey, in secreting wax, and in possessing the same social government.

The nest from which the following study was made was located on the Experimental Station grounds at College Station, Texas. Local history claims an age of three years for this colony and the contents of the nest seem to support the claim. It was located on a narrow strip of land between a fence and the cultivated field. The last furrow gave a low bank in which the nest was built. When investigated the nest had a covering of matted grass, dome-shaped and about 24 inches in diameter and a height of 8 inches above the surface of the soil. As originally built the dome had been on the unplowed land only, but with the increase of the years the roof had been extended until it covered the furrow and some part of plowed land. The original door was in the furrow, but at last, owing to the extension of the brood-chamber, the door had been changed to one side.

Let it be said here that when one investigates Texas bumblebees' nests one does not use the methods of the ordinary beekeeper, as smoke only provokes the anger of the bumblers, and a cloth veil is no protection. Equipped with a wire veil and covered with all the clothes one could walk in, the attack was made. Several ounces of ether were poured on the nest and a bell jar placed over it. This was done very early in the morning in the hope to get all the bees at home. However, it was forgotten that the bumblebees have the bad habit of sleeping on the under side of a leaf of some favorite honey or pollen plant. Scarcely had the bell jar been placed when in came a bee laden with pollen, and seemingly before one could plan just what to do, fifteen or twenty heavily ladened angry bees were trying to sting even the fence posts. Seven of these warriors made center shots and the investigator retreated with considerable speed. With trusty net and cyanide bottle the second attempt was made. Thirty-five field bees were put into that bottle before the nest could be approached.

On removing the bell jar it was found that the grass dome was so matted that the ether fumes had not penetrated the nest. A hole was made through the roof and another dose of ether turned in, and in a few minutes all was quiet. The roof was composed of the blades of Bermuda grass so woven and matted together that it was torn apart with difficulty. This mass was 8 inches thick in the center and enclosed in it was found a genuine surprise. In a small cavity that looked as if it might have been used for a long time, was coiled up a blue and green lizard, commonly called a whip-tail. Just what relationship exists between the lizard and the bees is unknown, but from the standpoint of protection from birds, animals, from summer sun and winter cold a better place could not exist for the lizard. Mixed with the grass was a large amount of dirt, which had been taken from the cavity below.

Newly emerged queens.

This cavity had been excavated in what had at one time been a cinder walk. The hole was circular in cross section, flatly oval in the transverse. The opening covered by the grass dome was about 8 inches across, the greatest inside diameter was 12 inches, at a depth of 6 inches, and a total depth of 9 inches.

The removal of the grass dome revealed a sheet of capped cells forming a roof to the cavity, and so fitting it that only a bee-space was left around the edge. No adult bees were found on the surface of this comb, but in the depression made by the contact of each group of three cocoons was either an egg mass or larvæ. The larvæ varied from the size of a wheat grain to that of the ordinary "grub worm" of the garden. Under this sheet of comb was a cavity one cell's length deep. The sheets of comb were held apart by a number of single cocoons and strangely from these came only drones. In this opening were many workers, three queens and, seemingly unaffected by the ether, a number of full-grown larvæ squirmed amid the stupefied bees. This second layer contained some empty cocoons and a number of honey and pollen cells. The same conditions were found in the third and fourth layers. The fifth layer was an old one, green with mould and contained nothing to show that it had been used this year. Below this was a mass of older comb, all out of shape, and mixed in it hundreds of bee wings. No explanation can be given for this accumulation of wings.

Not a drone, guest bee or moth was found in the nest. Thousands of little mites were in the nest and on the bees. In two days following the taking of the nest, fifty field bees returned. These were captured by the well-known "jug method." At the end of this time no more bees visited this place.

The comb presented a peculiar appearance in that it was constructed of groups containing about a dozen cells each. Of these cells the following divisions can be made: Queen and worker cells, which are about the same size, and drone cells, which are longer and less in diameter than the others. In addition to these there were cells in which the eggs are laid.

The eggs are pearly white and are laid in a wax cell. This cell is generally placed at the juncture of three cocoons.

The larvæ were present in every stage, but not one was found in a cell nor was there a single partly sealed cell found. Several of the full grown larvæ were kept in a pasteboard box several days and two of them constructed cocoons attached to the walls of the box. These pupæ failed to emerge.

When the nest was taken three old queens were found within. Four others were captured among the field bees. No queens were among the bees in the nest. The nest was taken September 10 and no queens emerged from the captured combs until September 20. From that date until September 30, 52 queens emerged. While these cocoons were given no special care, all the queens that appeared were perfect.

No drones were in the nest when taken, and none among the field bees. September 22nd the first drone emerged and on October 1st the last.

The workers were nearly as large as the queens and a very few of the dwarfed or undersized workers were in this colony. The last worker appeared September 18th.

No guest bees or moths could be found, but the yellow form of the drone long described as a guest bee was present in about equal number with those which are colored like the workers. All gradations between the two exist.

The honey found in this nest was water-white and extremely strong, and it appeared as if no evaporation had taken place. Honey was stored in three hundred and twenty-five cells, only a small amount being placed in a cell. In feeding, the newly emerged bee crawls into the cell and does not leave until the honey is exhausted and then it moves on to another cell and some field bee replaces the supply of nectar. No cells were sealed or had more than a few drops of honey in them. These cells were of three varieties, first empty cocoons, second empty cocoons that had wax additions around the top and third complete wax cells.

All of the pollen found was in wax cells, one-hundred and one varying amounts of pollen. Nineteen of these were sealed over. Several of the pollen masses were as large as a hazel nut. The wax used in the construction of these cells is largely mixed with plant hair and pollen grains. The wax was boiled out and was white. Beside making egg cells and storage cells out of the wax most of the cocoons had more or less of it scattered in lumps and an indication of wax base on which the cocoon had been built.

Of the facts stated here a number show the relationship between the solitary and social bees and the steps by which the honeybee reached its present state of developement. In the solitary bees there is only the queen to take part in the rearing of the young. In bombus, one to several queens will live in harmony and a force of workers do the field work. Drones are produced only late in the year. The bumblebee secretes a very small amount of the wax while the solitary bees do not secrete any. It would appear that in the egg-laying and brood-rearing habits of the bumblebee is seen the origin of the double comb. The steps by which this came into existence seem to be as follows: The solitary bee lays a single egg in a honey mass, in a dirt or wood cell, rearing but a single individual to the nest. The semi social improve on this and rear many young in separate but adjoining cells. The bumblebees, utilizing larger excavations, like a mouse nest, start as did the solitary bee, but lay a group of eggs in a single cell composed of wax within the larger opening. As this group of eggs hatches, the cell is extended until it becomes a flat mass on which the larvæ are fed. The full fed larvæ spin their cocoon in a group, the space between the circles being filled with wax, this gives a rude hexagonal one-sided comb. The later egg cells are located in the cavities between the caps of the first comb. As the eggs hatch the larvae crawl into the neighboring cavities and when these larvae spin their cocoons a double comb arranged just like the honeybee comb is formed. While this gives only two one-sided combs mismatched, however, it becomes two-sided as the larvæ seem to choose the thinnest place to cut through in emerging.

In the bumblebees themselves a gradation is shown toward the habits now exhibited by the honeybee. Observers report that in some species only one queen can exist in a nest and in other species only single eggs are laid in each cell and that cells are used many times for brood rearing. To sum up the relationship existing as shown by this nest a condition is found about midway between the solitary bee on one side and the hive bee on the other. The several queens living in harmony point toward the solitary bees, and the existence of a worker cast point to the hive bee. The secretion and use of wax in building cells, the placing of the cocoon to form a rude hexagonal comb, and the fact that in the South there seems to be a tendency for a nest to exist throughout a period of years seem to indicate clearly the steps by which the honeybees reached their present state of specialization.

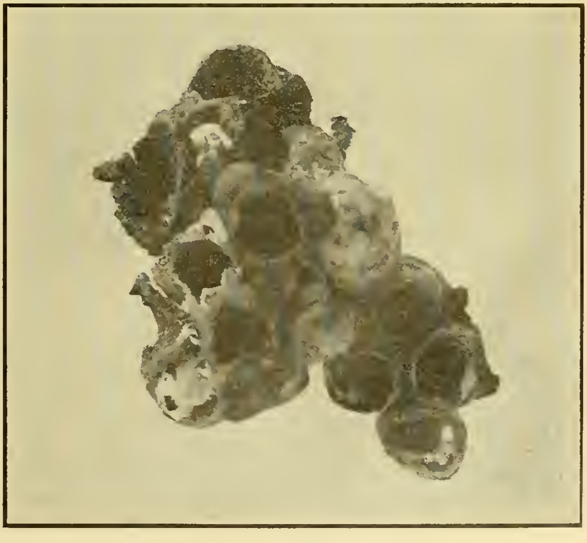
Data relative to the nest of bumblebees taken at College Station, Texas, September 10, 1919:

| | |
|---|---|
| Number of field force | 160 |
| Number of bees in nest | 170 |
| Number of queens | 7 |
| Number emerged after the nest was taken | 209 |
| Number of queens emerged | 52 |
| Number of drones emerged | 60 |
| Number of old cells (1918) | 205 |
| Number of new cells (1919) | 742 |
| Number of cells used for honey storage | 325 |
| Number of cells used for pollen storage | 126 |
| Amount of honey, estimated | 1 oz. |
| Total number of bees | 539 |
| Total number of cells | 992 |

College Station, Texas.

### Bumblebees and Smoke

In his article "A Bumblebee's Nest" in this issue, Mr. Parks asserts that smoke only provokes the anger of the bumblers. This is contrary to the experience of the associate editor. I have found it possible to control both bumblebees and yellow jackets very nicely with smoke. By blowing the smoke freely into the nest before disturbing the bees, I can open the nest and manipulate the colony much as one would do with a colony of honeybees under similar conditions. While examining such a nest I have had the bumblebees crawl over me quietly and without showing the slightest trace of anger. I would suggest that Mr. Parks try smoke again under more favorable conditions and see whether he is not able to control the bumblebees as readily as honeybees.—F. C. P.



Bumblebees' nest, showing cocoons, honey and pollen cells.

## Two Queens in One Brood-Chamber

By Dr. J. H. Merrill,

State Apiarist, Kansas State Agricultural College.

IN the spring of 1919, a queen was clipped in one of the colonies at the Kansas State Agricultural College. In the middle of August, on examining this colony, we found an unclipped queen. According to our records the old queen had been there on the date of the last examination. Thinking that perhaps this might be one of the rare occasions in which a young queen was working along in the hive with an old queen, I suggested that they examine the hive carefully with the idea of perhaps finding another queen, and another was found on the opposite side of the hive on the next to the outside frame. Both of these queens were laying queens, as was shown by the presence of young brood in the comb on which each queen was found. The first thought was that probably this was the old queen, and that she was being allowed to remain for a time with the new queen, but upon examining her it was found that she was not clipped. There were two frames of partially drawn comb in the center of the hive, which were evidently serving as an efficient queen excluder, at least enough so that both queens were working in the same brood-chamber. An examination of this colony again three days later showed that only one of the queens remained, which was only to be expected, as the rather thorough examination of the hive would cause the bees to discover the fact that there were two queens in the same hive. The fact that the clipped queen was no longer present, and as neither of the queens which were found were clipped, shows that both of the queens were young queens. It would have been interesting to know how long they would have gone along in the hive-body if it had not been disturbed, but, of course, as we did not know there were two queens there, we did not try to use any extra caution in examining it.

## Sweet Clover a Weed

RECENTLY I had occasion to examine a copy of Prof. L. H. Pammel's book on "Weeds of the Farm and Garden," a large cloth-bound book. I was greatly surprised to find that the author classes sweet clover with the noxious weeds. Here are some of the unfavorable references to sweet clover:

"In lists of weeds commonly found along roadsides, thistle, mustard, ragweed, burdock, sweet clover," etc.

In the Iowa seed law, "seeds of following weeds," include sweet clover (See Sec. 11, 1912).

"Sweet clover, one of the most common weeds of pastures, etc., although occasionally useful in Iowa as a bee-plant, a soil renovator and a forage plant, we must nevertheless regard it as a weed."

"In New England and the Central States such weeds as dandelion, smartweed, burdock, sweet clover, etc., are all common weeds."

In another place he admits that "sweet clover is an excellent bee-plant, a good forage plant, and a satisfactory soil renovator."

It sems this book of Prof. Pammel's was published in 1912, so it may be that since then he has experienced a change of heart in regard to sweet clover, just as many others have been compelled to do during the past decade.

If sweet clover is such a dangerous weed as the accusations I have quoted would indicate, then isn't it strange that so many agricultural experiment stations would urge its wider cultivation? And, again, why should the sale of tons upon tons of sweet clover seed all over the country be permitted, if it is a weed?

In many of the best agricultural papers during the past two or three years the growing of sweet clover has been advised, and plenty of reliable testimony has been given showing its value for hay and for forage. Strange that a "noxious weed" should be found so valuable for so many purposes!

It would seem that it would be entirely in order for Prof. Pammel to correct his statements relating to sweet clover as a weed, unless his book has already been discarded.

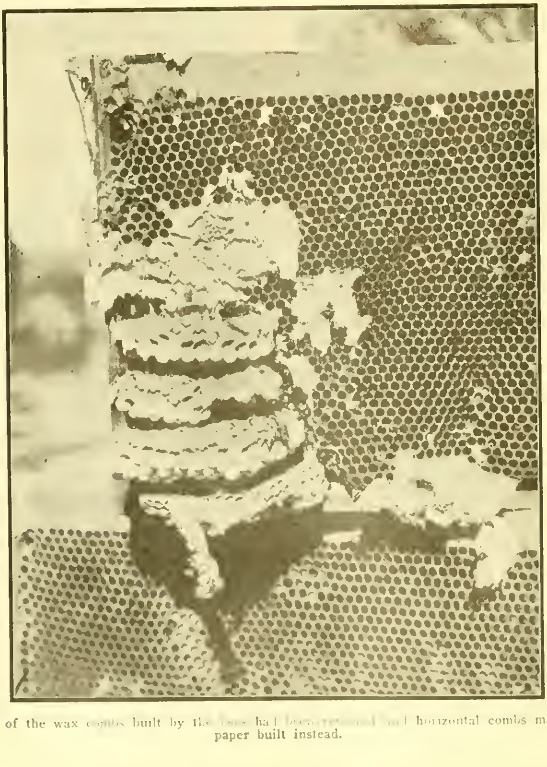
For a quarter of a century I have been a booster for sweet clover, and have sold tons of the seed. I have urged its growing not only as a most valuable honey producer, but as a hay and forage crop, as well as a great soil enricher. It seems to me that a plant having so many excellent qualities as does sweet clover, is far from being a "common weed."

How about it, Prof. Pammel?

GEORGE W. YORK.

Spokane, Wash.

The editor has permitted me to see the above letter from Mr. George W. York. Let us remember the definition of a weed: A plant growing where it is detrimental to another crop. If that is true, sweet clover is a weed under some conditions. I say this advisedly. Sweet clover is, however, under other conditions, a most valuable plant, not only as a soil renovator, a forage plant, but a splendid honey-plant. The most reliable honey-plant we have in Iowa. I would much prefer sweet clover on the barren hillsides and roadsides to a host of other plants. I advocate its planting. However, I have received frequent letters asking how to exterminate it. I have no objection to the planting of sweet clover in its right place. It should be planted. I want to say the same thing about the yellow sweet clover, which at Ames this year, furnished a continuous flow of honey for three weeks. It was better with us this year than white clover.



Part of the wax combs built by the bees had been removed and horizontal combs made of paper built instead.

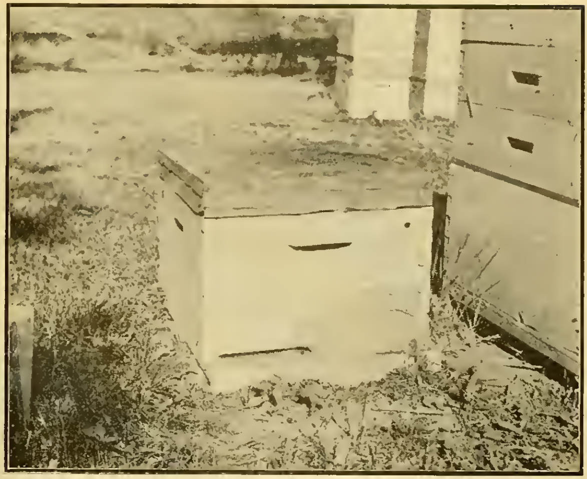
Sweet clover is mentioned in the Iowa seed law because it sometimes occurs as an adulteration. I have asked that this be eliminated from the law.

The dandelion is classed as a weed. So it is everywhere in Iowa. I don't know what bees would do without it in May and June, and yet thousands of Iowa citizens would like to see it banished. It depends altogether on the special interest of the individual. In our work on honey-plants these weeds will be included as valuable honey-plants.

L. H. PAMMEL.

## Yellow Jackets in a Beehive

By Frank C. Pellett



Beehive occupied by yellow jackets.

WHILE the writer was visiting at the apiary of D. W. Spangler, at Longmont, Colo., his attention was attracted to a hive where the flight at the entrance seemed unusual. There was a strong flight of insects coming and going, but upon examination it proved that the occupants of the hive were not bees, but yellow jackets. On the outside they had built a paper cover, similar to that with which they protect their hanging combs when built in the open. This extended about half way across the front of the hive, as will be seen in the photo.

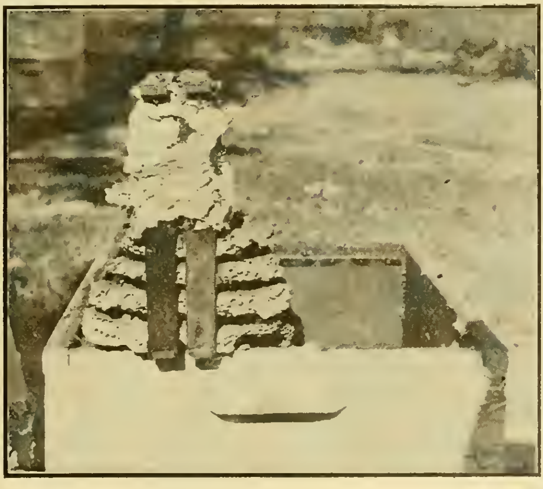
There was some difficulty in making an examination of the interior. There was some question as to whether the yellow jackets could be subdued by smoke, and the nature of the paper nest made it difficult to remove the frames. With the lighted smoker, the writer approached the hive and undertook to subdue the insects as though they were bees. A liberal amount of smoke was blown into the entrance, then the cover was removed and more smoke blown across the frames. The results were entirely satisfactory, for the wasps made no attempt to sting, except in one instance after the nest had been torn apart. A. J. McCarty and Mr. Spangler, both experienced beekeepers, stood by and witnessed the entire operation. It is hardly necessary to state that there had been serious doubt in the minds of the entire party as to whether these insects could be controlled by smoke. The usual explanation of the success of smoke in subduing bees, is due to the fact that they are induced to fill their honey sacs. Bees are generally quiet when their honey sacs are full. With wasps there was no honey to be had and a different explanation must be sought for.

On removing the frames it was found that a portion of the wax combs built by the bees had been removed and paper combs built instead. The honeybee's comb is made of wax and built vertically, while the combs built by the wasps are made of paper and built horizontally. The differences are well shown by the illustrations.

Notwithstanding the fact that the wasps had built their combs inside the hive, where there was ample protection, they had surrounded them with the usual paper shell. This outer shell was largely broken up in removing the nest.

The cells of the wasps all open downward and the young are attached to the inside by means of a sort of appendage which keeps them from falling out. The nest was a populous one and hundreds of wasps were flying about while the nest was being examined and the photos secured. The combs extended across six of the frames and were four in number.

While wasps may occasionally be seen seeking nectar from flowers, their food, for the most part, is composed of animal tissue. Some species feed to a large extent upon house flies, others upon caterpillars.



A horizontal comb extends across six frames within the hive.

## Granulated Honey

By A. F. Bonney

A NUMBER of years ago I was stopping in the town of El Rio, Calif., and visited with a man near there who used to allow beekeepers to set their colonies of bees around his farm (ranch), where he raised vast quantities of lima beans. He got from the beekeepers one pound of honey per colony as pay for the privilege, and at the time I saw him had stored away some fifty cans of honey, which had accumulated, he not thinking of marketing it. This honey was granulated solid. He would cut out three sides of the top of a can loose, use from it until it was empty, then begin on another, and as he worked a force of five to twenty men during the year, there was a great amount of the sweet consumed. No one objected that it was granulated.

Personally, I prefer the solid honey, both to eat and handle, and I believe the time will come when people generally will buy solidified honey as freely as they now do other forms, and that time will come accordingly as the granulated honey is advertised, and people educated; first, that the honey is pure; next, that it may be easily and quickly liquified; third, that it will keep indefinitely unchanged. Beekeepers know that it will be much easier to ship. There will be no leaking.

I think that if the beekeepers of the United States were to individually push granulated honey it would not be many years before we should have a fair trade in this commodity. I judge from my own experience, for I now have a few customers who come to me yearly.

Buck Grove, Iowa.

## Hives—8, 10, 13 Frames

By Jes. Dalton

IN regard to the article by Mr. C. F. Davie, on page 344 of the October number, concerning 13-frame hives, I wish to say that I have used these "barns" for years, both in the North and the South. I have 140 of them in use in a 300-colony yard, side by side with both 8 and 10-frames. I wish to comment a little.

First, he says "they accommodate 13 frames snugly with one-quarter inch to spare," and he expects Dadant results with "a minimum of swarming." I never put over 11 frames in those hives, use full depth supers and space same above as below. I let the queen have the run of the hive. I follow the "let alone" plan and take out the solid combs of honey. I do not try to take the honey off by the super full.

He speaks of the queen leaving 4 outside frames of foundation untouched. I would have been surprised had she done anything else. I find 4 or 5 frames of foundation together to be the best thing to make a queen leave the broodnest for the super, and vice versa, wherever those 4 or 5 frames are, if all in a bunch.

But I think Mr. Davie struck the meat in the cocoanut when he reported his wife's statement that it was "the largest swarm she has seen." Those barns will get them for us.

I think we all have a lot to learn about swarming yet, and also about the size and shape of hives. For instance, it is commonly accepted that "old queens cause swarming." But how about a young queen in a little hive, hot and full of brood and honey?

In June my 8-frames got to swarming and over 20 swarmed before I could check it. Some swarmed three times. But out of the 140 "barns," in the same yard, I got 2 swarms. Same yard, same weather and all, except that I had gone through the eights every 8 or 10 days, cutting out queen-cells and giving ventilation, etc., while I did not have time to go through the "barns" for nearly two months.

I have come to the conclusion that hives are like a lot of other things. You cannot get perfection, and often have to choose the lesser of two evils.

Those big hives are expensive to make and heavy to handle when full of bees and honey. But when run on the "let alone" plan and as non-swarmers, I find them the best I have tried yet.

Eight-frame hives are nice to make, cheap, and easy to handle. But there is something about a tall, narrow hive full of bees that makes them swarm worse than a wide, roomy hive. I prefer 20 frames in 2 stories to 21 frames in 3 stories.

I requeen one-half to two-thirds of my colonies every year, carrying over only my best queens. In looking for preparations for swarming, I notice the behavior of the bees at the entrance, the loafing, the excess of drones, etc.

As soon as a colony needs it, I block up the super with a little stick, for ventilation. If the hive sets much in the sun and is strong, I even block up the cover, for I consider swarming about the worst thing that happens in the apiary.

Bordelonville, La.

A paper shell was built around the combs inside the hive.

## The Use of the Truck

By E. F. Atwater

IN these days of rapid transportation, the beekeeper who can reach his yards with a car or truck, and does not do so, is becoming rare, and probably is not conducting his business in the most economical and efficient manner.

Among the favorite means of transportation the Ford stands first, because of low cost and economical upkeep. However, it is the writer's conviction that many beekeepers using the small car with small truck body, which, without overloading, cannot carry much of a load, might more economically do more work by investing a little more money and have a hauling capacity of 1,500 to 3,000 pounds per load.

We use a substantial small truck, carrying easily 1,500 pounds, and, when needed, a trailer which carries nearly as much more.

The light truck carries quite a load when needed, and, being equipped with pneumatic tires, makes nearly as good time on the road between yards as a touring car, but in moving bees or hauling in the honey from our ten yards, we do need more capacity.

Our friends at Parma, Idaho, Messrs. H. M. West, H. E. Crowther and Irvin F. Powers (the Parma Bee and Honey Company), use one or two small cars for quick trips to yards, and for the heavy hauling, a Ford with one of the ton or ton and a half truck attachments, and a large body, 7x9 feet, as shown in the cut.

These truck attachments are of several makes, chain, worm or internal gear drive, and cost $360 and upward. The tires on the heavy rear wheels are solid, eliminating one cause of trouble. Such a re-built Ford costs more than the little Ford ton truck, but the chassis and frame are, I believe, longer than that of the regular Ford truck, and, most important, the springs are very long, easy riding, semi-elliptic, while the springs on the regular Ford are short, unyielding, and reported to be anything but satisfactory for hauling anything as fragile as foundation in frames and sections, or honey in sections or in large combs to extract, unless roads are good and one drives very slowly and carefully.

In the upper part of the cut will be seen the Metcalf portable extracting outfit, with the Atwater-Crowther improvements, floor, when down, 12x16 feet, used for some years by the Parma Bee and Honey Co., and about the same as ours. In this connection the writer is convinced that, desirable as is the large floor space shown in this portable extracting house, more desirable still is the ability to drive right into a yard and get to work in the minimum of time, which cannot be done with a room, any part of which must be unfolded or set up on arrival, and taken down or folded when ready to move to another yard. The best size for a portable, considering all these points, is 8, 9, or possibly 10 feed wide, by 16 feet long.

The writer has seen one portable 10 feet wide, and aside from a little difficulty in getting into gates, and in passing teams on the road, the size is very satisfactory.

However, after years of use of a permanent outfit, our friends have arrived at the same conclusion as the writer, that where yards are not too distant, the better plan is to haul all combs to a central plant, where everything is convenient.

With the central plant, extracting can go on, as it did with us at one time last summer, when the weather would have entirely prevented the use of a portable, as we used escapes to remove the honey in an all but Arctic spell of weather.

Meridian, Idaho.

## Water in Shipping Bees

By A. E. Lusher

HAULING bees and shipping bees from one place to another is no small side issue if followed up year after year in a large way. Bees need water if shipped on cars any distance. When shipping bees on cars a long distance I would prefer to use a can about the size of a corn can, with the same kind of moss that they use in a nursery for ferns, put in the can, then fill half full of water. Take out enough frames so the can may be tacked in the corner of the super, then put on the moving screen. The bees will get the water from the moss and will not drown or be wet. If more water is needed, the can could be filled through the screen. It doesn't matter if they do get a little wet on a car, for they don't get the awful jarring and bumping a large truck gives them. Even in California, all roads are not boulevards, by a long ways, and the bees are in an awful uproar all the trip, from bumps and chuck holes.

I have tried many good ways of giving them water, but find that if they are not closed up too long they will be better off without the water. When the combs have fresh orange honey in them and you have bad roads, it will shake out on the bees and stick them all up so they suffocate while moving.

We try to move them just after they are extracted, before they get in any of the new honey, for they are lighter and the new combs don t wire-cut if the weather is warm. You may wonder why we start moving before the honey-flow is over, but by the time the last of the honey is over we have all the bees in another flow. I have tried filling a comb with water, but it shakes out on a rough road just like the new honey does. Methods and locations differ greatly. What works in one place may not work in another.

Pasadena, Calif.

(The editor believes that water is necessary only when the bees have brood, or when they are fed with dry candy. Fresh honey should be sufficient to supply their needs with the brood. We invite comment on this question.—Editor.)

## Fertilizing Drone Eggs—An Experiment

By Gilbert Barratt

THE statement by Dieckel in Germany, and Simmins in England, that queens lay nothing but fertilized eggs, and that in the case of eggs laid in drone-cells the fertilizing element is removed by the workers, led the writer, in view of later investigations, to prove, or disprove this theory.

A frame of drone-comb was placed in the middle of a strong colony, and the following day was examined. Fortunately, the queen was found in the act of laying in this comb, and immediately she had withdrawn her abdomen, the cell was closed with a penknife, thus preventing any worker touching the egg. Four cells were closed in this manner, the piece of comb cut out and placed in an incubating chamber running at 97 degrees. The next day a little royal jelly thinned slightly with new honey was placed on each egg with a hair pencil. These eggs duly hatched, were further fed until larvæ were two days old and were then transferred to artificial queen-cups; they were then given to a colony that had been deprived of its other combs being given from above an excluder. They were all accepted and on opening were found to contain dead drones. This experiment was very carefully conducted, and not the slightest opportunity given of allowing any bee to touch the eggs until hatched and larvæ two days old.

The investigation in view, providing the above theory was disproved, was to fertilize drone eggs. Freshly laid drone eggs from a pure golden Italian queen were secured, the comb containing them cut down, and pure Punic drones just arriving in the hive, after a flight, were squeezed over the eggs, in the hope that a spermatazoon would enter the micropile of the egg, and thus fertilize it. The reason Punic drones were chosen was to provide as great a contrast as possible, seeing that the Punic is intensely black and possesses several distinctive features. The queen chosen for the eggs was one producing the lightest and yellowest bees. These eggs were then treated exactly as in the foregoing experiment, and produced extremely dark queens, considerably darker than leather colored Italians. Several queens duly mated, some to yellow, and some to black drones, but nearly all workers showed unmistakable evidence of Punic blood. Drones returning from flight were selected because the air sac being distended, the expulsion of the male sperm was facilitated.

The eggs of a mismated pure golden queen were the subjects of the next experiment, and pure golden drones used; these produced bright golden queens, and finally, the eggs of a drone-laying virgin were tested in the same manner, these also producing queens exactly as in preceding experiments. We therefore have the anomaly of pure queens from a mismated mother, also queens from a virgin.

The value of these investigations, apart from its entomological interest, lies in the fact that all queen breeders, who are building up a high-class strain, can **definitely** introduce any given blood into that strain, and, owing to the comparative simplicity of the process, should interest all queen breeders.

The writer was not successful in fertilizing eggs from Italian fertile workers, nor was the experiment successful when using eggs nearly due to hatch. The age of the eggs may be

Atwater's truck.

easily determined by their position in the cells, a newly-laid egg being stuck point downwards, and gradually leans over until the third day, when it is quite flat. It will be interesting if Dr. Phillips or Mr. Pellett will try this out, and give the results of their investigations.

Sheffield, England.

(Parthenogenesis is no longer a theory, because it has been proven so many times over. But the above experiment is interesting, nevertheless, because it gives us a new idea, something which we believe has never been tried before, or at least never recorded. Fertilizing drone eggs in this manner looks plausible, at least for the sake of experiments. We trust our investigators will give it a fair trial.—Editor.)

## Temperature and Nectar Secretion

By Kennith Hawkins

THAT high night temperatures are not conducive to the secretion of nectar by honey plants, is indicated in the data collected at Watertown, Wis., during the summer of 1919, from a careful study of honey plants, by the G. B. Lewis Company's apiary and the records of the U. S. Weather Bureau here. Scientists know that relatively low night temperatures with considerably higher day temperatures are valuable to enable many honey plants to effect the change of starches to sugar within their systems, preparatory to nectar secretion next day. The temperature effect in slowing down nectar secretion in white clover, raspberry, basswood and sweet clover, in the order named, is noticeable.

On the graph accompanying this article, the heavy line (see Note 1) shows the gradual increase in the mean daily temperature from May 1, 1919, to July 31, 1919, beginning at 52 degrees F. and ending at 75 degrees F. The dotted line (see Note 2) represents the storing strength of the colonies, which arrived as 3-pound packages from Texas on May 7th, the date represented on the graph as A. The point B, on the dotted line, shows June 6th, the first day the bees began work in the supers. C. represents the peak of storing of surplus, and D. the greatest decline registered on July 31st. The bees were released on brood-frames with full sheets of medium brood foundation and the colonies had to draw out thin super foundation in the extracting frames. They were not fed, as they arived here in a good dandelion flow. Note that the point L., on the top horizontal line (see Note 4) represents the date when the first white clover bloom appeared, and M. the date of the first raspberry bloom, and N. the date of the first basswood bloom. O represents the first sweet clover bloom. The heavy graphs, X. Y., and Z, (see note 3), represent the relative rainfall for the three months, May, 2.45 in; June, 1.49 in., and July 4.00 in.

**Blooms Last—Nectar Stops**

The writer wishes to emphasize that sweet and white clover remained in bloom long after the bees stopped storing surplus honey and that sweet clover was still in bloom here August 27, with the bees working on it heavily, but with no signs of the nectar in the supers. Please note that the heaviest rainfall of the months was in July, cutting off the drying-up theory relative to the failure of the honey plants to yield nectar. Robbing began to be noticeable here August 1, and the bees have since placed no surplus honey in the supers.

This indicates that something other than the condition of the bees, the rainfall or the number of honey plants affected the cessation of nectar secretion. The writer believes the cessation is due to the constantly increasing mean temperature, which was particularly noticeable at night.

The following table is of interest:

May 7—Bees here.
May 10—First eggs noted in frames.
May 26—First white clover bloom.
May 28—First red clover bloom.
June 6—First colony begins in super.
June 9—Locust blooms.
June 9—Raspberries bloom.
June 17—Heavy flow from white clover.
June 20—Basswood buds begin opening.
June 21—First sweet clover bloom.
July 3—Bees desert basswood.
July 15—Last supers on filled slowly.
August 1—Bees robbing badly.
August 10—Sweet clover, toad flax, goldenrod, red clover, dandelions bloom.
August 27—Bees still robbing badly on opportunity.

**Explanation of Graph**

I.—Heavy line shows average mean temperature increase from 52.9 degrees F.

II.—Dotted line shows: Arrival of bees at A. (May 7); begun super work at B. (June 6); peak of storing at C. (July 15), and robbing at D. (August 1).

III.—Heavy graphs represent comparative rainfall for the months of May, June and July; May, 2.45 in.; June, 1.49 in.; July, 4.00 in.

IV.—Dates marked on the top horizontal line marked to indicate the beginning of honey-flows from: L.—white clover; M—raspberry; N—basswood; O—sweet clover.

V.—Daily night temperatures not shown for lack of space. Daily mean temperature increase adopted since complete figures show daily increase in night temperatures, which are relative.

Watertown, Wis.

## What Beekeeping Offers for Disabled Soldiers

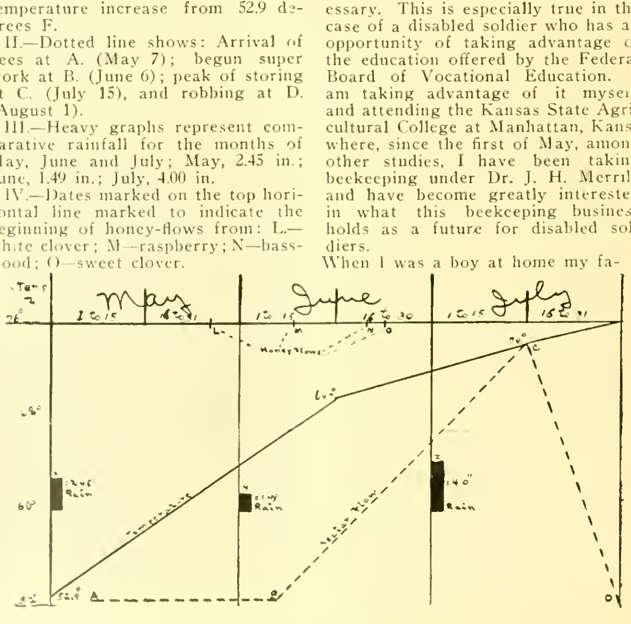
By Frank R. Townsend

Vocational Educational Student, Kansas State Agricultural College

THE question of securing employment for disabled soldiers is one that would ordinarily cause a great deal of concern and no little worry to the men themselves. However, since the creation of the Federal Board of Vocational Education, the solution of this problem has been greatly simplified. I am one of these men, and wish to say a few words as to the benefits I think I am going to receive from this work.

On the 28th day of September, 1918, I was struck by a machine gun bullet, which caused a compound fracture of my right leg. After the wound was healed the leg was shorter than before the injury. I do not believe that a man is crippled unless the injury is in the head, or, in other words, if he has any ambition there are great opportunities open for him to obtain an education, and fit himself for business. Even though a man may be so disabled that he cannot do all of the heavy work about the apiary himself, yet, if he understands the nature of bees well enough, he will find beekeeping will pay enough income so that he can afford to hire someone to do the heavier work for him whenever necessary. This is especially true in the case of a disabled soldier who has an opportunity of taking advantage of the education offered by the Federal Board of Vocational Education. I am taking advantage of it myself, and attending the Kansas State Agricultural College at Manhattan, Kans., where, since the first of May, among other studies, I have been taking beekeeping under Dr. J. H. Merrill, and have become greatly interested in what this beekeeping business holds as a future for disabled soldiers.

When I was a boy at home my fa-



ther kept a few colonies of bees and handled them for comb honey. Although his hives and tools were of the crudest sort, and the price usually obtained for comb honey at that time was only 10 cents per section, he made a small profit from them. My portion of the work was to put the sections together and fasten in the foundation with a Parker Foundation Fastener. Since taking up the study of beekeeping, I find a great deal of difference in what used to be considered necessary for the keeping of bees, and what I now know to be the real necessity, that is, a thorough knowledge of bee behavior. Father's knowledge of bee-behavior was limited. During the winter we made up the sections. In the spring we put them in the hives, and in the fall, if any of them were filled, we removed them. The questions of increase, swarm prevention, requeening, improving our stock, etc., never concerned us in the least.

I do not believe it will take a great deal of capital to make a start in the bee business, providing one begins with a few colonies and gradually makes his increase. By making a small start, I believe that a man can get greater knowledge of bee behavior, and, consequently, know what to expect from his bees at all seasons of the year better than he could if he started in with a large number of colonies, without having experience or knowledge to handle them. Here at the college we get practical experience in beekeeping. They have a good many colonies, and our class work consists of handling and caring for these colonies. Ever since last May we have been engaged in actual handling of the bees, trying out different methods, so as to learn how the bees would act under different conditions, and I think that we have made a very good beginning along the road of better beekeeping.

After spending so much time in France, where I had an opportunity of watching the people get good results from small pieces of ground, I feel that now I could take a much smaller place and make more money from it than I could before I went over there.

I am planning on combining poultry raising with my bees, and I believe that, even though I may be classed as a disabled soldier, the chances for making good in this world have not been withheld from me.

## Criticisms

By C. E. Fowler

On page 267 F. R. Smythe says: "In my opinion the primary cause of swarming is a preponderance of young bees in the brood-chamber." And on page 271 G. C. Greiner says: "It is the old stock which is bent on swarming; young worker bees the same as young queens are less inclined that way." Who is right?

Beekeepers seem to have so many different ideas as to what causes and how to prevent swarming that a new beginner is fairly dazed and works overtime trying to follow them all.

I would like to suggest that they are both wrong and will try to prove it by saying that in my system of swarm prevention, which worked 100 per cent this year, I paid no attention to old bees or young bees to keep them either in or out of the brood-chamber. I might also mention that the large hive advocates do not make any provision for keeping either young or old bees out of the brood-nests. At least one of them must be wrong.

Then I think you are overworking Dr. C. C. Miller, making him answer so many "Tom-fool" questions asked by new beginners who are too poor to buy a bee-book and are just getting the fever and want to know it all at once. Look at "Miscellaneous Questions," page 278. 1st, "How much profit can be made out of one colony of bees?" 2nd, "How many colonies can one man tend?" Iowa has the fever badly and wants to make money **on paper,** as quickly as possible.

On page 277 the Doctor has again made the mistake of saying carbon disulphide will kill eggs of the moth.

(I have been asked where I got the authority for saying that carbon disulfide would kill the eggs of the bee-moth. I don't know. I think that wherever I first read of this drug as a good thing to destroy the larvæ of the bee-moth, it was stated that it had the advantage over the fumes of sulfur that it would kill both eggs and larvæ. I had a lot of combs in which the bee-moth had begun its work. I treated them with carbon disulfide, and found no occasion for a second treatment. If I had used sulfur I should have expected a second crop of larvæ from eggs not destroyed. Still there is a possibility that in that particular case all eggs had hatched before treatment.

Turning to the books, I don't get much light. Some of them are silent as to the eggs. One of them speaks of using the fumes of burning sulfur "to kill the eggs or worms of the moth." (I'm pretty sure that's a mistake about the eggs.) Another says that when the larvae are killed by sulpher, "eggs also are, at the same time, destroyed." Another says the eggs are usually not destroyed by fumigation. So there you are.

Who can offer satisfactory proof either way? If one failed to kill eggs with carbon disulfide, is it certain the dose was heavy enough? If one fumigated and had no eggs hatch after, is it certain any eggs were present? Help!—C. C. Miller.)

A returned soldier takes up beekeeping at the Kansas College.

I would like to tell "Alabama" (last answer, page 378) a good way to transfer 10-frame standard to Jumbo. First, nail a seven-eighths piece of wood on the bottom of the standard frame, making the frames the same depth as the Jumbo, and put them right in the Jumbo hive, and the job is done. Then by the aid of full sheets of foundation and a good honey flow get the queen on the Jumbo frames and the standard above an excluder, and when filled with honey extract and melt the old combs, which would never be satisfactory left in after cutting and transferring the old way.

But why change to the Jumbo? On page 274 Arthur C. Miller says of the long-idea hive: "They are great, unwieldy things," which applies equally to the Jumbo.

The easiest of all ways to handle bees is to use the standard 5 11-16 extracted honey super for brood-nest and all, making everything standard and interchangeable.

The two magic words of beekeeping are "standard" and "interchangeable."

Hammonton, N. J.

(We trust our correspondent will forgive us if we say that we find no contradiction in the statements of Messrs. F. R. Smythe and G. C. Greiner. The "primary cause of swarming is a preponderance of bees," and of course it must be young bees, since a colony increases only by hatching of additional bees. But "it is the old bees which are bent on swarming," owing to that very preponderance which causes the hive to become overstocked. So these two writers agree and are both right.

But there is no need to make provisions to keep either young or old bees out of the brood-chamber, if there is an adequate amount of room.

As to overworking our Dr. Miller, we believe our correspondent is right. Too many questions are asked which one would find answered in the books. But if we were to leave out **all** the questions that may be found answered in the books, the department of Dr. Miller's Answers would be very small. The intention is to give information to beginners, and incidentally to some experienced apiarists.

Mr. Fowler wants beekeepers to use only shallow bodies for both supers and brood-chambers. He is not the first man to advise this. The Heddon hive was made of shallow bodies, so was the Danzenbaker. Other people want all full depth Langstroth bodies, both for brood-chamber and supers. We have never found it advisable to use the same size in brood-chambers and supers and do not believe that the use of shallow supers with full depth brood-chambers is any more objectionable than the use of sections on full-depth bodies. We can, even then, say that our implements are "standard and interchangeable."—C. P. D.)

## Wire Kinks

By F. B. Richardson

IN the May number of the American Bee Journal, Mr. J. E. Crane makes some very interesting and timely remarks about foundation and its sagging. Every extracted honey producer, particularly in a warm country, has at some time had experience with the sagging foundation proposition, in spite of all possible care—as he thinks.

From our experience, the thickness of the wax has less to do with the sagging than the wiring. Before the days of pierced frames we used to be very careful to pierce the frames near the top bar, no matter how many wires we were using, but when the frames came pierced it not only saved a lot of work, but the manufacturer had evidently had experience, as they were pierced quite high up, near the top bar. All the frames we have used have been pierced to take four wires, and this number seems to be the most generally successful, three not being quite enough to avoid large spaces between the wires, and five being a waste of time and wire, with no added advantage.

The method of wiring by simply threading the wires through the holes, then tightening until they "sing," has not proven the best method with us, as the wires are bound to slacken by drawing into the wood, with the result of bulging combs, sometimes in three or four separate bumps, or the top tears out or the middle caves in, making very poor combs for any purpose. We have tried wire at all distances and nearness to both top and bottom bar, but with always the same result, so long as the wires are simply threaded in as above.

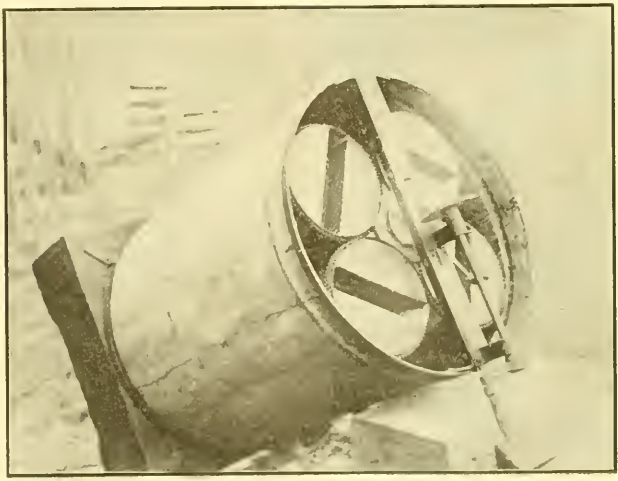
Happening into a supply dealer's one day, and having to wait some little time, an investigating tour of the premises discovered some frames in process of wiring by an entirely new method, and one that looked very reasonable. No. 3 fine or lath nails were inserted in the holes in the frames and the nail curved into a hook on the inside of the frame with a pair of round-nosed plyers. The little hooks are made so the wire just slips under easily, and with a little practice they can be turned out at a lively rate. The wire is threaded around these hooks and then drawn tight. There is absolutely no "give" to the wires done this way, the only necessary care being not to draw in the sides of the frame so as to spring it out of shape. We wind the wire on itself to start with and finish it the same way, using an electrician's twist. If wound correctly there is no danger of its ever pulling out.

Another thing we have found of importance in avoiding sagging wax is the size of wire to use. We used to buy No. 30 tinned wire by the stone, but now we buy No. 26, as it does not break nearly so readily, is easier to imbed and holds its position better, being heavy enough to support the wax without sagging. In fact, we have never had a sagged comb since using it, and we have hundreds of them made over this sized wire, held by the hooks and filled with light brood foundation.

As there is a considerable saving of wax by the use of the light instead of the medium or heavy brood, and the combs stand the wear and tear of extracting as well as any we have ever used, we can see no advantage in the extra weight through the center.

In buying a yard of bees we sometimes come across some very novel, not to say peculiar, things, but the strangest thing to me has been the many systems—or lack of systems—of putting in foundation. We found one idea not long ago which was really funny, or would have been if it hadn't been a little pathetic, where a man had wired his frames from corner to corner for **extracting!** It might be a bit of improvement on no wiring at all, but very little, I'm afraid, for this climate. One of our neighbors does not believe in wiring at all, as he is thoroughly convinced that his comb would melt down in the hive, his theory being that the wires atract heat. There is an old saying that "it takes all kinds to make a world," and sometimes we do not have very hard work to believe it.

Hughson, Calif.



Livingston's extractor.

## A New Honey Extractor

The extractors now in use have some serious drawbacks. The most serious of these is the damage to tender combs when extracting for the first time and the necessity of stopping the machine to reverse. A machine has been invented by T. W. Livingston, of Georgia, which overcomes both these difficulties. The cause of breakage of new combs is frequently the heavy pressure from throwing out the honey from one side while the honey still remains on the opposite side of the comb. Mr. Livingston's extractor can be reversed several times while the machine is in motion, thus doing away with the necessity of stopping or slowing down the machine. This being the case, it is possible to reverse it frequently while the combs are being extracted, thus throwing out a small part of the honey from one side and reversing to throw out an equal amount from the other side, thus equalizing the pressure and removing the honey gradually.

With the machines now on the market the baskets are hinged on one corner, thus throwing the basket clear around with a bang when it is necessary to reverse. The Livingston machine is pivoted under the center of the bottom of the basket and it is reversed by swinging it around on its pivot. Instead of being necessary to reverse the baskets in an opposite direction from that in which the reel is revolving, this machine reverses by simply making a half turn in the same direction. It is possible thus to reverse as frequently as desired without checking the motion of the machine. The baskets always turn in the same direction. We are showing two pictures herewith, which will give a good idea of the construction of the machine. The one shows the top view of the baskets and the gearing. The other shows the complete machine.

The movement of the earth on its axis as it revolves around the sun furnishes a good illustration of the way the baskets inside the extractor turn on their pivots, while revolving around the inside of the can. Mr. Livingston has extracted thousands of pounds of honey successfully with this machine. He first described it in this journal in 1909. The same machine has been in operation in his apiaries since that time, so that it is safe to say that the principle is correct and beemen may hope to be relieved of the annoyance of the breakage incident to reversing with the old style extractor.

## Punics or African Bees and Parthenogenesis

THOSE of our readers who have read the editorial on the above subject and the Baldensperger article on the same matter in the November, 1918, number of the American Bee Journal, will remember that the question raised is whether any Punic or South African worker-bees have a capacity to lay eggs that will hatch and produce perfectly developed females, without previous impregnation.

The quotation which we made, from the "Western Province Bee Journal," on this question, convinced us that its editor, Mr. Attridge, is entirely disinterested and impartial in this matter. So we wrote him to ask his opinion. He replied in a long letter, from which, with his approval, we quote as follows:

"From my own experience I can say that it is quite a common thing for our South African queens to take wing during manipulation while the hive is open. Unless great care is taken, it is easy for a queen to enter a super or to settle in a small cluster anywhere and enter a hive.

"I have experimented with several colonies regarding **'worker-laying workers,'** but my results have been negative. In every instance I have failed to produce workers from workers, although the Rhodesian Entomologist considers Mr. Onions, who conducted experiments under his supervision, to have proved his claim that they 'produce females without male impregnation' and that this 'appears to be the rule to which male development is the exception.'

"It is generally believed that only one queen is allowed in a hive at one time. When inspecting colonies in Johannesburg (for European foulbrood), I found, in one hive containing bees, brood and stores, no less than six young and active queens, besides some sealed queen-cells. I was struck with the number of queen-cells in nearly every hive opened in that part of the country.

"Three years ago I raised three queens at the same time in an observation hive. One of them was slightly small, but she mated successfully (indicated by the presence of the genital organs of the male), and became a worker-laying queen. The other two were scarcely larger than an ordinary worker. One of them lived about a month and then disappeared. The other one lived in the hive for 5 months. Although such queens would be difficult to find in a populous colony, I had no difficulty in picking her out from among the workers in the observation hive on account of her shape. When seen enlarged through a hand lens, she looked a perfect queen. She was shy and preferred the dark places on the top and edges of the comb. Sometimes she would wander on the face of the comb and deposit eggs in the cells surrounding the brood patch. All of her eggs which I marked disappeared in 24 hours. They were no doubt removed by the workers. I believe they were drone eggs and as drones were apparently not required, the bees would not rear them. If, by any chance, the worker-laying queen came near the supposed drone-layer, the latter fled as fast as possible. She was also sometimes worried by the workers. This is the only time I have observed workers worrying a queen, even though there were more than one present in the same hive. The distance from the inside of the hive to the outside was 3 to 4 feet.

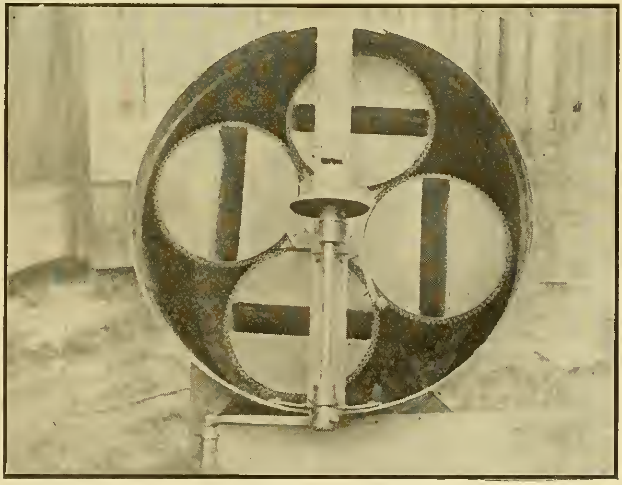
"Do fertile or laying workers work in the field the same as ordinary workers until such time as they assume the maternal instinct, or do they remain in the hive to be fed and treated as normal queens? I should believe the latter.

"There is no difference in the egg which produces a queen or a worker. Special feeding produces a queen. This was proved by Huber, who fed worker larvæ with royal jelly, and when emerged he painted the thorax and amputated the right antenna. He afterward caught some of these workers in the act of ovipositing. He wrote: 'I have repeated the experiment so often, and weighed all the concomitant circumstances with so much care, that whenever I please I can obtain fertile (laying) workers in my hives.' The perfect queen is capable of mating. The laying-worker is considered to be incapable of mating, yet she is credited by Mr. Onions with power which it is generally believed is denied to the perfect queen. If the worker can generate workers, why does nature give them a queen or mother-bee, without which no colony can survive? The fact that the ancient Egyptians of the 12th Dynasty used the figure of the queen-bee to denote sovereignty shows that thousands of years ago the honeybee had evolved to the stage of a queen or mother-bee for the colony. It seems remarkable that this bee retains what may possibly be considered the original type, i. e., each female perfect and able to reproduce her kind.

"As far as I can gather, Mr. Onions makes no mention of unmated African queens possessing the power of producing worker-bees.

"Is a perfect unmated African queen able to produce both workers and drones? If not, why should a laying worker be able to do so? This has an important bearing on the subject. Mr. Onions used what he described as 'African bees.' These he obtained from near Cape Town, where no pure race may be said to exist, where in past years scores of colonies, English, Carniolan, Italian, etc., having been imported and acclimatization attempted. In his own apiary, at the Cape, he had an Italian as well as an African

"Hewitt writes of using Punic bees, a bee found in North Africa. Taylor, writing of the Egyptian, i. e., a North African bee, says: 'They possess two striking peculiarities—the first that they never use propolis, but substi-



Top view of Livingston extractor.

tute wax; the second, and a still more surprising one, that they appear to be accompanied in every colony by a fourth order of individuals, consisting in about a dozen of what may either be lalled fertile workers or drone-producing queens, but differing from either of these classes as we find them with other bees, as they are like queens in form, but smaller, and are marked, as are the drones that they and they only produce, by a yellow spot upon the breast.'

"Mr. Onions' latest experiments were carried out in Rhodesia with bees imported from the suburbs of Cape Town. Some of the bees were sent him from near to where his late Cape apiary was situated. What is our 'Cape bee?' One would have thought that a bee of purer African race would be found in Rhodesia; a Punic or Egyptian bee having worked its way down. Mr. Onions does not claim to be able to demonstrate **worker-laying workers** from the native bee found in Rhodesia, but from the hybrid bee from the Cape.

"I know of only one man here who claims to be able to repeat Mr. Onions' experiments, and he acknowledges that the colony does not prosper, and finally perishes through weakness.

"I think we need to better understand the factors which govern sex in mating. In this we are told that there are certain laws which, like those of the Medes and Persians, are unalterable, and it is a question whether, in face of these laws, it is possible for an egg from a fully developed and mated queen, to produce either a **worker-laying worker** or only a drone-laying queen, simply by the difference in the feeding of the larva after the egg—in which are wrapped unalterable laws determining sex—has hatched.

"What we speak of as the 'Cape bee' is not a pure race, but a hybrid. Bees of various colors and stripes and characteristics are found in the hive at the same time. We have yet much to learn about the 'Cape bee.'

"ALF. J. ATTRIDGE."

## Beekeeping in British Columbia

OUR old friend and correspondent, F. Dundas Todd, of Victoria, sends us an account of the Provincial Fair, in which three tons of honey were exhibited early in October. It seems that the ladies are doing considerable work in this line, as will appear from the following quotation in the "Daily Province:"

"A Woman Exhibitor. That beekeeping is not exclusively a man's work is proved by the exhibit of Mrs. McCallum, of Delta, whose display of 300 pounds of honey products gained the first prize, and combined with winnings in other classes, won the gold medal of the exhibition.

"Mrs. McCallum has kept bees four years only, but in that time has forged to the front in this interesting profession."

Mr. Todd's letter follows:

"Dear Mr. Dadant: I am enclosing a readable account of our beekeepers' exhibit at New Westminster Provincial Fair, which I suspect was written by our President, J. H. Winson, a man who turns many a delightful phrase with a facile pen.

"Five years ago I judged the honey at this exhibition. The whole exhibit could easily have been staged on a common kitchen table. The great war brought a cessation of activities in agricultural exhibitions in British Columbia; now, with happier times, they have resumed. The contrast between 1914 and 1919 gives a rather good measure of the advance our province has made, even with the din of warfare sounding in our ears, and the absence of our boys, who were long in deeds but mighty short in claims.

"Our women folks minded the boys' bees, as they did so many other chores, and they did the work well, as you will see from the article. One of them, Mrs. McCallum, simply swept the decks in almost every class, and I want to assure you she is a real beekeeper, doing every bit of the work herself. Furthermore, I want to say I know dozens more just like her in British Columbia.

"Our crop, on account of the dry season, is very spotty, but we expect the total to show a decided increase, due to the enthusiasm now prevalent all along the line. These and other matters will probably be dealt with later on.

"I have worked my own apiary over into the Dadant style of hives, with only one modification, I used the Jumbo frame. It is the easiest handled hive I ever tackled, and I have about run the gamut. The transfer of 39 colonies cost me some money and a lot of work, but I don't think I will ever regret going through it all.

"Yours sincerely,

"F. DUNDAS TODD."

# BEEKEEPERS BY THE WAY

A teacher of Agriculture who is a beekeeper, fruit grower and gardener.

### A Successful Teacher-Beekeeper

D. W. Spangler, of Longmont, Colo., is no eight-hour-a-day man. He does two days' work in one. As a teacher of agriculture and science, he does a full day's work in the school room, and later does another day's work with his bees or in his garden. He has been known to rise at 4 o'clock in the morning in order to do a half day's work at crating honey before time to go to the school room.

Spangler is a delightful fellow with a genial, winning personality, just the type of man needed in school work. Sometimes teachers of agriculture are sneered at as impractical, but not so Spangler. He makes more money out of the day's work he does in his garden and with his bees than he does from the day in the school room. Fact is he is reputed to make nearly double from his agricultural operations that the city pays for his services as a teacher.

Back east Spangler would be regarded as an extensive beekeeper with his 300 colonies of bees. Many a man puts in his full time with no more than that. Beside his bees and his school work he has several acres devoted to garden vegetables and fruits, and likes to put all the theories put forward in the text-books to the test of actual practice in his own grounds.

With all his activities he finds time for a brief vacation now and then and takes his family to his cabin in the mountains near Long's Peak, where the above picture was taken. It is a delightful place to go, as the writer has reason to know, having been a guest there.

## A Useful Hive Cart

By H. W. Sanders

THE illustration shows a handy two-wheeled vehicle used in our apiary and found to be of great service. The actual gears and low platform are designed and sold for use of dairymen for the transfer of filled milk cans, and are of solid construction. The platform stands only a few inches from the ground and rests on a dropped axle, which in turn is borne by the large iron wheels. The handle for pulling or pushing is clearly shown in the photograph, and two small feet at the same end support the cart when at rest. A neighboring dairyman sold his stock last spring and we bought the cart at the sale, thinking it might be useful in the garden. Then when the time came for carrying around supers it seemed a bright idea to use the new outfit. The supers kept falling over and getting mixed up with the wheels whenever the cart went over a bump, so a few old boards were nailed around, forming a kind of box. .(The less said about the carpentry the better—but it works). In this, supers are piled and it will take as many as seven at a time. A rope is fixed to the far end of the platform and brought over the supers. It is held in the hand as the cart is pulled along and prevents the supers from falling out of the rear of the cart which is not boarded up. The iron frame is designed to carry great weights and will take a barrel of water, if needed. We have taken six heavy supers at a time to the honey house and find it a great improvement over a wheelbarrow. For next season we are planning to rebuild the body and to make it bee-tight with a bee-escape for use when robbers are troublesome. This year we took most of the crop before this time, and for the last few supers used the wheelbarrow.

Sturgeon Creek, Man.

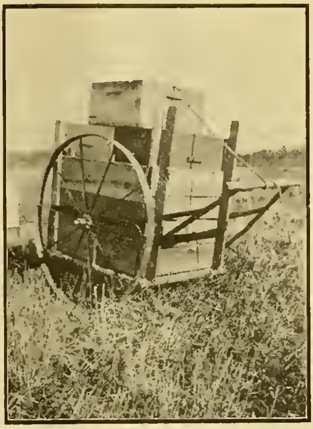
## Bee Behavior and Queen Introduction

By Arthur C. Miller

IT is getting rather late to talk about queen introduction, at least for the northern part of the continent, but some of the recent articles on the subject have called to my attention the fact that there seems to be a decided lack of knowledge of the laws of bee behavior in their relation to a change of queens.

In the introduction of virgins the chief cause of loss lies in the queen herself, and the older she is the greater the chance of loss. A virgin put into a strange colony is prone to run out as soon as she is free to do so, and very often, if not usually, she fails to take her location, and so either is lost or wanders into some other hive, not infrequently superseding the reigning queen.

Long years ago Henry Alley got onto this and his invariable rule was to confine the virgin to the hive until she was quiet and settled, i. e., about twelve hours. His practice was to introduce the virgins near nightfall, close the entrance with coarse weeds that would shrink much in wilting and so automatically release the colony by the following morning. In his "baby nuclei," with a half-inch auger hole for an entrance, he closed it with a crumpled up plantain leaf, an abundance of which were to be found in his yard.



Sanders' hive cart.

With laying queens the results are largely dependent on the condition of the receiving colony. If it is only recently dequeened, say a few minutes to two days, a laying queen taken from a nearby hive can be successfully introduced in most any way. If the queen has been long caged she is often lost the same as a virgin—by running from the hive. If the colony has been queenless long enough to have queen-cells well started, the results are quite variable, in fact impossible to prognosticate. Therein lies the variability of the results by the sundry cage systems of introduction. If the new queen is released within about three days after the removal of the old queen—not three days after putting the cage into the hive—the new queen is rarely lost. If it is longer, the bees very often continue with their queen-cells and "supersede" the new queen. If the cage is of the type pushed into the comb, giving the queen a chance to lay as the young workers emerge, the chance of supersedence is less. Or if the introduction takes place in the height of the flow—a wretched time to swap queens—the bees may continue the cells and swarm.

Just keep in mind the "behavior of the bees' and queen introduction, as well as many other operations, become simple.

Providence, R. I.

# DR. MILLER'S ANSWERS

### Feeding

I have 18 colonies which have not enough food to winter. As the season is very late, I can hardly give them syrup. Would you be kind enough to tell me which would be the best way to give them food for winter? Do you think that I should wait till I put them in the cellar and then put a cake of sugar mixed with a little cream tartar on frames and cover all with bags? QUEBEC.

ANSWER.—It is quite probable that as far north as you are, it would be too late to give the bees syrup now. The method which you suggest, to put candy over the combs, will be right.

To make the sugar candy, take best granulated sugar and stir into it a little hot water, in a dish on the stove. Don't let it burn, for burnt syrup is death to bees in winter. Keep trying it, and when you find that a little stirred in a saucer will grain, take it off quickly and pour into dishes, making cakes three-fourths of an inch to an inch and one-fourth thick. This can be used right over the brood-frames in winter. In this part of the country every girl knows how to make this sugar candy, and they call it "fudge." It is not hard, and the bees suck it readily. If it is properly made, it will be of a pale yellow color and fairly soft. There is no need of using tartaric acid in it. The tartaric acid is used only in sugar syrup, to keep it from crystallizing into a hard cake.

### Bees Fighting

A very small swarm of bees emerged from one of my colonies. Not knowing which one it was, I let them go. After settling on a tree they returned and settled on a hive. The bees in the hive immediately began fighting them, and the ground was almost covered with dead bees in a short while. I smoked them well, which caused them to go into the hive, and it also stopped their fighting. Did I do the right thing?

Some have said that this was the parent colony; I do not believe it. What is your idea about it? OKLAHOMA.

ANSWER.—You certainly did what we would have done in your place. The smoking bewildered them and acted upon them just as when we smoke them to keep them from fighting us. We do not believe it was the parent colony that they joined, for they would certainly not have fought them. It is quite likely that that swarm came from some other apiary, if you could not find the colony from which they emerged in your own yard. Very often bees from away are attracted by the bees of an apiary and settle there, especially when they are in abnormal condition.

### Did Dr. Bonney Move His Bees?

Some time ago I saw that the authorities were going to make Dr. Bonney remove his bees, and he was going to fight it. Did the case ever come to trial, and if so, what was the outcome? PENNSYLVANIA.

ANSWER.—Replying to the above: As soon as I heard of the action of our town council I went to the Mayor, and as I have a gunpowder temper, and it was at the explosion point, I said to him: "You tell the council to go to —— with its resolution." There never was a move made to make me move. I did build an 8-foot fence 40 feet long, in front of the honey house and part of the yard, as a sort of sop, but was not called on to do it, and did not feel obliged to. The most of this has now been taken down, as I needed the lumber for other purposes.

The whole thing originated in spite work, because a man thought I killed his dog. He made a close guess. BONNEY.

### Kind of Queens

What qualities are required for standard 3-band bees? If a queen is producing workers yellow to tip on under side, only 3 yellow bands across the back of abdomen, how should such bees be classified 3-bands, or goldens? Is there any such race of bees known as goldens? Where do our so-called golden bees spring from? I have several queens producing 5-band bees, but one I ordered from a golden breeder is producing about 90 per cent 3-band and not more than 10 per cent goldens, while the drones have four and five yellow bands. How should these be classified? I am inclined to believe our so-called golden bees are only sports from 3-band bees bred for their color. Am I right or wrong? ARKANSAS.

Answer.—You are right. Goldens are only Italian bees bred for color. So there is absolutely no positive standard, so far as I know. In some cases the lighter color is brought about through a cross with Cyprians and it is probably the cause of some of these golden bees being very cross. As a rule, golden Italian bees are as gentle as the average pure Italian.

Pure Italian bees are active, peaceable, show three yellow bands, including the narrow one next to the thorax. They hang quietly to the combs, when properly handled, and never crowd to the corners and drop off, as common blacks do.

### Clipped Queens

In the case of queens with clipped wings, is there not the danger that the bees may still decide to swarm, and may ill-treat the queen on finding her unable to go with them. This happened in my case this season, and the queen was thrown out.

Will you advise:

1. What precautionary steps ought to be taken generally in the case of clipped queens?

2. What should be done if queen-cells are found in a hive with a clipped queen?

I adopted the Demaree system and shall be obliged if you will make your replies applicable to same.

Answers.—1. I'm not sure that any precautionary measure should be used other than is used with queens unclipped.

2. Nor is there anything different to be done when queen-cells are found.

Yet in either case it makes a big difference whether queens are clipped or not. If a colony decides to swarm, and actually does swarm, if the queen's wings are whole, off goes the swarm, queen and all, if you are not on hand to hive it, and sometimes when you are on hand. If the queen is clipped, you can pick her up, and the swarm is at your mercy. The worst that can happen is that you may not find the queen, and she may be lost, but it is better to lose the queen than to lose both queen and bees. If a queen cannot fly, the the bees will swarm just the same, but the bees will return, and generally so will the queen. Then they may continue to swarm till a young queen emerges, when the old queen will be done for. But it's up to you to provide against that

### Bees Get No Honey

I have 10 colonies to look after, and they have not made any comb honey this year. What is your idea as to their not making any honey?.

When is the best time to feed for winter? INDIANA.

Answer.—Bees can store surplus honey only as they can gather nectar from the flowers, and they cannot always get enough nectar. It may be too wet, it may be too dry, and sometimes when it seems neither too wet nor too dry, and when there are plenty of flowers, there is no nectar, and no one seems to know why. We just say it was a poor season and let it go at that.

The sooner you feed for winter the better, after you know the bees will need feeding, although in your locality you may feed even as late as October. November is a bit risky

### Foulbrood

1. If a swarm of bees is affected slightly with European foulbrood and has stored a hundred or more pounds of honey, would it be safe to use the combs after extracting the honey?

2. Is it possible for a strong swarm of bees to get rid of a slight case of foulbrood after infection? IOWA.

Answers.—1. Such combs are probably safe, and yet I should hesitate about using them in an apiary entirely free from the disease.

2. I think that has happened with European, but perhaps not with American.

### Wintering

Last winter I wintered my 20 colonies without losing one, by putting a super on each filled with a chaff cushion and giving sufficient insulation, beside good winter stores. But this fall I intend to care still better for my friends, and thought it advisable also to put a super, empty or filled with inside fixtures, that is, without sections beneath the brood-hive. Would you advise me to do so? Would you leave that super empty or filled with the inside fixtures, or would you advise even to let sections partly or entirely finished within the super? By putting such a super under the hive I thought cold winds might be kept from the cluster. ILLINOIS.

Answer.—There should be advantage in having a story under the brood-chamber, but don't have sections in it, as it would spoil the sections for future use.

### Decoy Hives—Lost Queens

1. Where a swarm leaves with a virgin queen and afterwards she is lost on her mating trip, what becomes of the swarm?

2. When using decoy hives, should I leave the comb in them? If I do, the moths will destroy them; if I don't, they would not attract the bees. PENNSYLVANIA.

Answers.—1. If a virgin issues with a swarm and is lost on her mating trip, the bees are likely to return to their old home. Yet, for anything I know, there may be exceptions.

2. An empty hive without combs may serve, but it is better to have the combs. If moths attack them you can exchange them for fresh combs, giving the wormy combs to the bees to clean up.

(By using only one comb the moths are not as likely to trouble. More can be added as soon as a swarm is secured. New combs in which no brood has been reared are not so likely to be destroyed by moths as old combs. —F. C. P.)

### Square Hives—Decoys, Etc.

1. Do you know of anyone using square hives who turns the frames crosswise of the entrance during the winter? If so, do they claim better wintering?

2 When frames are reversed (inverted), bees will fill the space between the comb and bottom bar, but will they not fill it with drone-comb?

PENNSYLVANIA

Answers.—1. No, we know of no one using a different entrance in winter. This is a much debated question in Europe, but we have never known it to be settled either way.

2. Yes, very probably.

### Honey Fermenting

I have been interested in beekeeping for the past five years. I have a crop of honey that has me puzzled. I noticed the combs as I took them off of the hives. The cappings (not the entire comb, but about one-third or less) were puffed up high. I broke some of the cells open with a small piece of wood and I found the honey bubbled, or in a state of fermentation. I extracted this honey and bottled it, and three days after it showed signs of fermenting.

Will you please give me some information about this? What caused it to ferment in the comb? Is there anything I can do to save this honey, and still sell it as pure honey? ILLINOIS.

Answer.—It is very difficult to reply to this enquiry in a satisfactory manner. There is so much in the honey-producing business that we do not know. The best thing we can do is to give an instance of something similar, taken from the pages of the American Bee Journal for April, 1917. The editor, having called upon some leading eastern apiarists, was told by Mr. Irving Kenyon that for two years his honey had been fermenting in the cells and bursting the cappings. He thought it due to a microbe and thought of changing his combs, which probably carried the ferment over from one year to another. In June, 1918, page 205, he stated that he had made the change by shaking the bees from the combs and rendering the combs, and had less than one-fourth of one per cent of the trouble.

In your case it is probably only accidental. It is perhaps due to unripe honey, sealed too soon by the bees. We would advise heating the honey in a double boiler, "au bain-marie," as confectioners call it, taking care not to overheat it. Heating will remove the excess moisture and will also evaporate the gases formed in it. This will probably stop further fermentation. The honey can be sold as pure honey, but must not be offered as a good grade. It will very likely retain a little of the acidity of fermentation.—Editor.

### Swarm Control for Comb Honey

I have given a trial to the plan as set forth in the August number of the Journal on page 266. The drones in the hive body at the side clogged the entrance into the other hive body completely, as I found when I opened it to exchange the empty brood combs with others from the mother hive. I had given some ventilation at the top of the hive at the side. But I found a lot of bees suffocated on the bottom-board, mostly drones, but also some dead worker bees. I therefore took the hive away from the side and placed it on top of the mother hive with an escape board between. Next day the upper hive body was still filled with bees. I left it on another day and night. But the workers had not left. So I proceeded to make an examination, and I found a virgin queen, a black queen, which took wing before I could catch her. The workers I shook from the combs in front of the mother hive and they entered at once. What became of the black queen? NEW YORK.

Answer.—The experience which you relate might have been expected in a colony having drones, since the only opening from the side hive was through a queen-and-drone excluder into the main hive. Mr. Smythe evidently did not have drones when he experimented in this way. So we can see that things do not always turn out as anticipated.

What became of the queen? It is not very easy to answer. Since she had never before taken a flight, it is quite probable that she got lost or went to another colony. In either case she would not survive.

### Name of Apiary

In reading the last number of American Bee Journal I ran across your article "Bees in the Bush and Trout in the Brook," and I think that is the ideal name for the location I am in.

Your description of the trout streams is just like the ones we have here, and, Oh, Boy! the fishing is certainly unsurpassable.

Mr. Bartlett is surely not in as good a location as mine, for here we had a very heavy fall flow from goldenrod, buckwheat and boneset.

We are packing our bees for winter now, and hope to bring them through in good shape.

If you contemplate coming to northern Michigan again, come and see us in Oscoda County. We are in an ideal location for bees. Our heavy honey yielders are willow, dandelion, alsike and white clover, apple, June-berry, wild cherry, basswood, raspberry, blackberry, buckwheat, goldenrod, fireweed and boneset. Can you beat it?

Can you think of a good name for my apiary? MICHIGAN.

ANSWER.—According to the census, your county appears to have the smallest population of any county in the State, 2,027. This indicates plenty of wild flowers, indeed. Why not call your apiary "Wilderness"?—C. P. D.

### Extracting

Would it be asking too much for a brief sketch of the manner in which you do your extracting with reference to the two points mentioned below? I am now reaching a stage with my bees when kitchen methods of extracting are not adequate and I propose erecting a honey house. I propose using a Dadant uncapping can and running the honey from the extractor into a galvanized tin or iron tank, from which I shall draw it off as required. But I have formed no satisfactory ideas as to (1) rendering the cappings, and (2) disposition of the empty combs for the bees to clean out.

1. When the receptacle in which the cappings are rendered cools, I am unable to remove the wax without breaking it badly, and much of it sticks to the sides. I should like to know how this rendering is best accomplished.

2. When I replace my supers of empty combs upon the hives, the bees take possession and clean out the combs satisfactorily, but they won't vacate, and this means a lot of extra work in shaking them off again. In an outapiary this is a great inconvenience, as an extra trip or two is necessary. And, by the time this shaking is wholly accomplished, particularly if it be towards the end of the season, the bees are in an uproar and are apt to sting badly. If I pile the supers in the yard, I am apt to cause robbing. I should like very much to know your practice as to these two matters.

3. How do you get the bees out of the supers for extracting? BRITISH COLUMBIA.

ANSWERS.—1. When you render cappings, or any beeswax for that matter, you should have some flaring cans at hand, 2 inches wider at the top than at the bottom. We use cans that are 12 inches high and 14 inches wide at top. They hold about 40 pounds of wax. We pour about a quart of hot water in the can first, and then the hot beeswax. Let it cool slowly, and the residue will all be found at the bottom of the cake, except such things as dead bees, which ought not to be allowed to float on the wax, but should be skimmed off, in case any are there. You will find that, in cooling, the wax shrinks away from the sides of the can. Should any part of it stick fast, when cool, just turn the can over on a block and pour boiling water outside on the sticking spot.

2. This is a mooted question. Many apiarists prefer to put the supers out of doors, and let the bees clean them out. We do not like it. It excites the bees, and, besides, the neighbors' bees can help themselves, too. If you put an entirely empty super between the brood-chamber and the supers to be cleaned, the bees will not remain in them, unless the weather is so hot and the colony so populous that they can fill that empty super with bees. Usually we leave the supers on to be cleaned until our next trip.

3. We have found nothing equal to the Porter bee escape, to get the bees out of the super. It requires a trip to the apiary the evening before extraction, but it is well worth the trouble.—Editor.

### Honey Disappeared

I have a colony of bees in a Langstroth hive. I fitted a Falcon 8-frame hive and placed it on top. The bees filled the 8 frames with honey and had it capped nicely. When I took it off today there was nothing but nice white combs, but no honey. Now I want to know what the bees did with it, and why they did it? PENNSYLVANIA.

ANSWER.—I would be inclined to say that the colony was robbed. But you say it is strong. So that cannot be it, unless you are mistaken about its strength. If it was robbed, there would be no honey in the lower hive either.

There is another guess, and that is that the upper hive combs were not filled full of honey, but were full only along the top edges. That is sometimes the case when a man does not look carefully or does not lift them out.

If you say it was neither the one nor the other, I am done guessing. You will be just as good as myself for the next guess.

### Moths

I am a florist and I keep a few colonies of bees "for the fun of it." I double up every fall to keep the number of colonies down to 5 or 6. I find it impossible, with my knowledge, to preserve free from moths and larvæ my extra combs until swarming time the next year. I keep them in a closed chest in an outbuilding, but the worms are there ahead of me. What can I do? NEW YORK.

ANSWER.—There is a failure somewhere in your method. If the combs are free from eggs or larvæ of moths when put away, and the chest is well closed, they will remain exempt until exposed again. Perhaps your mistake is to think that they do not contain any traces of moths when put away. Often eggs are laid on the edges of combs by moths, which the bees would have removed if left in their charge.

Try a dose of carbon-disulphide spread on a rag in that chest, as you put the combs in it. Then give another dose in 3 weeks. If there are no living moths then, there will be none, for moths cannot stand a New York winter in an outbuilding.

When you take them out in spring, put them in charge of colonies of bees immediately.

### Jumbo Hive—Demuth Winter Case

1. While examining my bees today (September 6), I found one colony which had one unsealed queen-cell with the larva about 4 days old, but no other brood or eggs in the hive. This queen was introduced in August and is still in the hive. Where did the eggs for the queen-cell come from, when there is no other brood in the hive?

2. How would a Jumbo hive be for comb honey, if I put in 9 frames spaced 1½ in. and a division board? Would it prevent swarming?

3. What do you think of the Demuth wintering case, when used with a 10-frame hive? MINNESOTA.

ANSWERS.—1. Your letter is not explicit, as you do not state when this queen hatched and whether she was introduced by you into another hive. Perhaps you do not mean that you *introduced* her, but simply allowed her to hatch there. There is considerable mystery about this. If I am to give an opinion it is that there was a queen already in the hive, about ready to lay, when you saw this larva in a cell. I would suggest that the egg in that cell was laid by a drone-laying worker and that this larva never matured into a queen, but died and was thrown out, as usually done by the workers in such cases.

2. A Jumbo used as you proposed would certainly be nearer a non-swarmer than a smaller hive. But you can never be entirely sure of preventing swarming.

3. The Demuth wintering case, with the frames on end, is very good. The only objection is the labor involved.

### Feeding

I have two or three colonies of bees that will have to be fed this winter. Can they be fed on sorghum molasses? If not, what can I feed them, as I cannot get sugar? ILLINOIS.

ANSWER.—Molasses is death on bees in winter. It would be better to let them starve than to feed them on something that would kill them.

If you cannot get honey that you know to be free from germs of foulbrood, write to B. F. Kindig, President National Beekeepers' Association, stating your case. He will perhaps be able to help you out.

### Queens

1. Can queens be reared in the same compartment with a young, vigorous queen without them casting a swarm upon the sealing of the first cell? That is, before they are strong enough to require another story?

2. About how many queens will ten nuclei mate in a month conditions being favorable?

3. What distinction do breeders make between untested and select untested queens?

4. Is it desirable to breed from a queen whose bees persist in building an extra amount of burr and brace comb, yet other points being in her favor?

5. What are some of the criticisms you have to offer in using a 10-frame hive body with three bee-tight compartments; the two outside ones having entrances facing the same way? AN AMATEUR.

ANSWERS.—1. Not if the colony is normal and the crop promising. As a rule, the queen will destroy the cells or the bees will prepare to swarm.

2. This depends upon your management. If a cell ready to hatch or a virgin is inserted in a nucleus, she will be likely to mate inside of a week or ten days. After that it is only 2 or 3 days before she begins to lay. I would say you might rear two queens a month, on the average, in each nucleus, conditions being favorable.

3. A select untested queen would be one that was large and very active.

4. The building of brace combs is probably due to accidental causes, hence would offer no objections. But if you really have such bees, it may not be advisable to breed from their queen.

5. A 10-frame hive body, divided into 3 bee-tight compartments with entirely full division-boards, would give less than 3 frames in each. They would probably do for nuclei.

### Size of Hives

Up to date I have used the 8-frame hive with two stories for the brood-chamber, with the same result as reported by A. C. Miller in the American Bee Journal. Often have I found that bees gnaw down the cells in the lower stories and often combs are found in the spring with an abundance of pollen apparently too hard for the bees to remove. In consequence of this the queen goes to the second story and the lower is neglected or partly abandoned. This is a source of annoyance to the beekeeper. Combs are too expensive to melt them by the wholesale, and to clean them takes time, and "time is money.' Last spring I took big bunch of these combs and soaked them for a whole day, then I took an awl and "plowed" up the pollen, running the awl through the cells near the middle of the comb. Combs treated thus were pretty well cleaned by the bees. However, I am apt to believe that the Jumbo hive would remedy this trouble considerably, because there is but one story, and they are almost compelled to clean up unnecessary pollen. I have always been in favor of a large brood-chamber and I was under the impression that two 8-frame hive-bodies would be all right, but now I see that it is not the right kind of a hive. So far I have made two Jumbo hives with standard frames, 10 for each hive. Is this the right number, or should I use more? Please state exact width of a standard Jumbo hive.

2. We winter bees on the summer stand under a shed, protected in winter on three sides, west, north and east. We do not use much packing at all, except a collapsible winter case for each. Do you think it would be advisable to use burlap over the frames, four-fold, with the cover put on loose to give a little top ventilation? INDIANA.

ANSWERS.—1. Bees do not usually place too much pollen in the brood-combs, unless they are queenless, or unless they have great opportunities to harvest pollen after brood-rearing has ceased. This is unusual. But when they have two brood-nests, it is quite probable that there is more storing in one of those nests than if they were confined on just the room they need for brood, and for winter food.

Your method of compelling them to clean out the pollen is ingenious and will probably be efficient. Usually there is plenty of demand for the pollen, in prolific colonies, unless it is mouldy and unfit for use, when spring comes

The Jumbo hive, such as is manufactured, has the great fault of having its frames spaced only 1⅜ inches from center to center, as already mentioned in these columns. The wider spacing of 1½, which we have recommended and which we use, is certainly desirable.

We are recommending a hive measuring 16⅞ inches in width inside, which takes freely 11 frames of the Hoffman style of the 1½-inch width. We do not use the Hoffman frame ourselves, but it seems to be popular. With a 11-frame hive, if you want to use only 10 frames in it you can use a division board in place of one of the frames, as we do. The 11 frame Jumbo has only a little more breeding space than the 10-frame Dadant standard hive.

2. Light burlap, with absorbents over it, is good. But don't let a current of air pass through.

# MISCELLANEOUS NEWS ITEMS

## What is a Bee Line?

There seems to be a very general impression that the honeybee on returning from the field, takes a direct route, flying in a straight line to the hive. So general is this idea that a "Bee Line" has come to mean a straight line between two points.

That bees often vary their direction, in unfavorable weather, there is little doubt. E. A. Welch, of Quincy, Ill., has bees on both sides of the Mississippi river near that place. The river is in the neighborhood of a mile in width at that point, yet the bees cross the stream in both directions. According to Mr. Welch, the bees follow both up and down stream on both sides to take advantage of the protection of the bridge when crossing in windy weather. The flight is very marked at such times, the bees scattering out in a fan shape and converging in the same manner at the opposite side of the stream.—F. C. P.

### Lack of Information

I sold six colonies to a man who had just moved into the neighborhood. He said he used to keep bees. But two weeks ago he sent his son to me to ask if "bees carried honey on their hind legs?" He said he had been watching them for two days, and they were going into the hive with a lot of yellow stuff on their hind legs. I didn't laugh, but got my Langstroth on the Honeybee, revised by C. P. Dadant, and showed the son the anatomy of the queen bee, and advised his father to get Langstroth, revised, same as I did when I sold him the bees.

I don't know how a man can "keep" bees and not know where they carry their honey, and where they carry their pollen. I explained to the son that this yellow "stuff" was pollen, and these receptacles were little baskets, made for this very purpose.

Illinois.

### Bees Are Dying

It is reported that H. A. Scullen, bee expert from the Washington State College, has visited the locality around Prosser, Wash., in an effort to determine the cause of excessive mortality among bees. Actual extinction of the industry is threatened, and several plans have been made to remedy the alarming situation. W. H. Tucker reports 80 colonies totally lost and 150 badly depleted, at a loss of from $10,000 to $12,000, which, of course, includes the possible honey crop, which promised to be a good one. E. E. Starkey reported 50 colonies entirely lost and others depleted, making his loss some $2,000. K. P. Runa said that of 25 thriving colonies he has not one left. Others report similar conditions. Dr. C. H. Ponting, another leading beekeeper, is preparing to remove his apiary immediately. It has been suggested that spraying the fruit-blooms with poisonous spray material may be one cause of the bee-mortality. It is hoped that the real cause may be discovered and a remedy found for it.

G. W. YORK.

### A New Building at Guelph

The contract has been awarded for a fine new building to be devoted exclusively to the use of the beekeeping department of the Agricultural College at Guelph, Ontario. The building is to be two stories and basement, and will cost $40,000. When fully equipped it is thought the cost will total $60,000.

Work on the new building will begin at once and continue during the winter months. We congratulate Professor Millen and the college on the new building. We are informed that there are 260 freshmen students who are taking beekeeping at the Ontario Agricultural College this season.

### Mating Experiment

A bee mating experiment was carried out last July by F. W. L. Sladen, Apiarist of the Dominion Department of Agriculture on Duck Island, at the eastern end of Lake Ontario. Duck Island is 8 miles from the nearest land and no bees are kept there. The results showed, among other things, that the queens mated by hand-picked drones, not more than about two weeks old, became drone breeders. They produced from less than 1 per cent to about 50 per cent of workers.

### Carniola Today

As you know, I left Carniola, my country, 5 years ago, coming on purpose to study American beekeeping at the University of Minnesota.

I think I am very lucky to have all my folks living, when thousands of others have lost all their relatives in the new Jugoslav State (formerly belonging to Austria.)

My father wrote, in the last letter I received from him, that nearly 75 per cent of the bees died in Carniola on account of shortage of sugar and loss of men in this war. He himself lost over 400 colonies in 1917, this leaving him 870. Honey was selling way above the prices ever known; his honey was sold at 57 kronen, or about $10 a pound. Other goods are too high to be mentioned.

FRANK A. ROJINA,
State Farm, University of Minnesota.

### Current Notes

Members of the Dubuque Branch or the Iowa Beekeepers' Association held their annual meeting at the home of George Spoerl, near Durango, Iowa, September 23.

There was a meeting of the beekeepers of the county held at Richland Center, Wis., October 10. Mr. McMurray, Assistant State Bee Inspecter, was present. James Gwin is Secretary.

A Community Bee Association has been organized at Owensboro, Ky., under the direction of H. R. Niswonger, bee specialist from Lexington, Ky.

Beekeepers of Grant County, Wisconsin (of which there are 250) will make an effort to secure one of the county bee meetings that is to be held during the coming winter.

### Three-Day Meetings in Wisconsin

Interest in beekeeping in Wisconsin has become so pronounced, following the beekeepers' chautauqua held at Madison, Wis., last August, that H. F. Wilson, Secretary of the State Association, has announced a schedule of thirty 3-day meetings to be held in various parts of the State during the coming winter. These schools will be under the direction of H. L. McMurray, representing the United States Department of Agriculture, and will be held wherever an attendance of 25 persons is guaranteed. Meetings will begin during the present month.

### Meeting

The Washington State Beekeepers' Association will hold its annual meeting in Seattle, January 22-24, 1920. For particulars write to the Secretary, H. Christensen, Toppenish, Washington.

PRICE LIST—Select Untested Queens
May 15 to July 1

| | |
|---|---|
| One to four, inclusive | $2.50 each |
| Five to nine, inclusive | 2.45 each |
| Ten or more | 2.40 each |
| July 1 to November 1. | |
| One to four, ,inclusive | 2.00 each |
| Five to nine, inclusive | 1.95 each |
| Ten or more | 1.90 each |
| Bees by the Pound—After May 15. | |
| One pound | $4.00 |
| Two pounds | 7.00 |

WE ARE NOW BOOKING ORDERS FOR

## QUEENS AND PACKAGE BEES

for the season of 1920 and will be pleased to place your order on our list for early shipment

Every queen we send out is reared by me, personally, and I promise you the very best stock I am capable of producing.

Safe arrival, pure mating and entire satisfaction is our guarantee.

"Queens received. If their bees are as good as the queens, they will be 'Hum Dingers.' "—A. P. Berryman, McHenry, Kentucky.

"Thank you very much for the excellent quality of queens you sent and for the fine treatment you have given me."—Dr. L. E. Moore, Gary, Indiana.

"Using no smoke or veil, I looked thru the hive containing your queen, which was as large as any I ever saw. Her ten frames of brood completely covered with yellow bees was as pretty a sight as one cou.. ever expect to see."—D. L. Shoaff, Shelbyville, Illino

"Your bees are the best that I ever handle in my fifteen years of beekeeping."—Percy Saunders, Antigonish, Nova Scotia, Canada.

"Your queens are the most beautiful of any I have ever seen."—Kenneth L. Carlock, Baylis Illinois.

"The queen you sent me is such a beauty that I can hardly get her off my mind."—F. J. Rettig, Wabash, Indiana.

"The first lot of bees I got from you were fine, but the last were better yet."—J. H. Warren, Elliott, Iowa.

"The bees I got from you are the finest lot I ever saw and they don't try to sting."—Jacob Williamson, Riverton, Illinois.

"The queen I got of you a year ago was the only one in my yard that gave a surplus"—Albert Hass, Louisville, Kentucky.

"The queen I got of you is sure some worker. Her bees have made about three times as much honey as the others I have."—Henry Fromberg, Crandall, South Dakota.

"Your bees certainly are good stock."—H. L. Buchanan, Logansport, Indiana.

"You will be pleased to know the queen arrived in good shape and is laying well."—E. A. Palmer, Empire Post Office, Panama Canal Zone.

**JAY SMITH, Route 3. Vincennes, Ind.**

In lots of ten or more pounds, 5 per cent discount. Write for our booklet and complete price list.

BOOKS FOR CHRISTMAS GIFTS

Our Backdoor Neighbors, by Frank C. Pellett. An interesting account of the author's experience with wild creatures, $1.50.

Langstroth on the Honeybee, revised by Dadant. The most complete book on beekeeping ever written, $1.50.

1000 Answers to Beekeeping Questions, by Dr. Miller, $1.25.
First Lessons in Beekeeping, by C. P. Dadant, $1.00.
Beginner's Bee Book, by Frank C. Pellett, $1.25.
Productive Beekeeping, by Frank C. Pellett, $2.50.
Practical Queen Rearing, by Frank C. Pellett, $1.00.

Life of the Bee, Maeterlinck. A wonderful story of the life within the hive. Not a textbook on beekeeping, $1.00.

Honey Makers, by Margaret Morley. An interesting account of the part the bee has played in the world's literature, $1.50.

Flower and the Bee, by Lovell. An exhaustive account of the part played by the bees in plant pollenation, $2.00.

Embryology of the Honeybee, by Dr. Nelson. A technical account of the development of the bee from the egg, $2.00.

How to Keep Bees, by Anna Comstock, $1.20.

Beekeeping, by E. F. Phillips. A comprehensive book, $2.00.

ADD 75 CENTS TO THE PRICE OF ANY OF THE ABOVE BOOKS AND GET THE BOOK AND AMERICAN BEE JOURNAL FOR ONE YEAR

**AMERICAN BEE JOURNAL, Hamilton, Illinois**

### Wisconsin Convention

The Wisconsin beekeepers will hold their annual convention at Madison on December 4 and 5, meeting in the Senate chamber at the Capitol building. An extended program has been provided and a good attendance is anticipated.

### National Organization

At the last Convention of the National Beekeepers' Association the officers of the organization were authorized to call a meeting of delegates from the various States to be held at Kansas City, Mo., during the coming winter. This meeting will be held January 6-9, 1920. The meeting will be held in the Muehlbach Hotel, corner Baltimore avenue and Twelfth street, which will also be the headquarters of the delegates. It is of extreme importance that every State beekeepers' organization arrange for the sending of one or more delegates to this convention. The important matters which will be brought up for consideration have been discussed in previous issues of this Journal. Opponents as well as advocates of a reorganization of the National should be present in order that the recommendations which may be made to the National Beekeepers' Association may be consistent with the best interests of the beekeeping industry. The delegates should carry to the meeting at Kansas City credentials showing them to be the authorized representatives of the various organizations. This is of very great importance, as anyone who is not possessed of proper credentials will find himself without a vote in the meeting.

It appears to me that this meeting is to be one of the most important meetings of the beekeepers within recent years. The future of the National Beekeepers' Association will doubtless be outlined at this meeting. Everyone who is sincerely interested in beekeepers' organizations, whether of a co-operative nature or otherwise, should see to it that a delegate is appointed at the next meeting of the association, or if no meeting is to be held between now and January 6, that the officers of the organization appoint a delegate.

B. F. KINDIG,
President National Beekeepers' Association.

### Cortland County Meeting

The Cortland County, New York, Beekeepers' Association held its annual fall picnic September 20, at the home of James Waters, Cuyler, N. Y. The principal address was delivered by George H. Rhea, Bee Specialist from New York State College of Agriculture.

### Beginner's Bee Book

The "Beginner's Bee Book," by F. C. Pellett (Lippincott), is not a text-book. A text-book is a book which is intended for class instruction. The "Beginner's Bee Book" is rather an interesting account of the attractive side of beekeeping, its outlook, the advantages of honey production, together with short accounts of the division of labor in the bee family, the ways in which it is increased, the harvesting of honey, diseases, enemies and wintering problems. It ends with a short glossary. The book contains 180 pages and 17 illustrations. It sells at $1.25.—C. P. D.

### Illinois Convention

The twenty-ninth annual meeting of the Illinois State Beekeepers' Association, will be held at Springfield, on the 9th and 10th of December, 1919. Notice is hereby given that at the last meeting it was voted that at the next meeting the matter of a change in the membership fee would be considered.

The program committee will arrange the best program they are able to secure, and send to the members on postals, as usual, and all who come will have a good time, certain.

Prizes as usual for essays. Let's have a crowd and a good time. Headquarters at the Leland Hotel.

JAS. A. STONE, Sec.

### Tennessee State Meet

The Tennessee State Beekeepers' Association will meet in Nashville, December 11, 1919. Our editor hopes to be present. Particulars may be secured by addressing the Secretary, Mr. G. M. Bentley, at Knoxville, Tenn.

### Indiana Convention

The Indiana beekeepers will hold their annual convention at the State House in Indianapolis on December 18 and 19. B. F. Kindig, Jay Smith and E. G. Baldwin are among the speakers named in a letter received from Secretary Ross B. Scott, who anticipates one of the best conventions ever held in that State.

### Chenango County Meeting

A letter from Secretary T. R. Gorton announces the second annual meeting of the Chenango County Beekeepers Society to be held on December 20, at Norwich, N. Y. A good program will be provided and a good attendance is expected.

### Chicago-Northwestern Meeting

The annual meeting of the Chicago-Northwestern Beekeepers' Assotiation will be held at room 138, in the Great Northern Hotel, Chicago, December 15 and 16, 1919. A good program is being prepared and will be mailed for the asking to anyone interested.

JOHN C. BULL, Sec.-Treas.,
Valparaiso, Ind.

# Index to Vol. LIX

## SUBJECTS

Aeroplanes for Beekeepers—406.
Aluminum Honeycomb—99.
American Fighters in Europe—53.
Ants—132, 134, 384.
Anzac in Hamilton—263.
Apiary, Size of—97.
Appropriations for Beekeeping—314.
Arizona, Inspector for—386.
Articles, Dating 272.
Australia, the Beekeeper's Paradise—265, 297.
Average Yield per Colony—165.

Baby Nucleus—236.
Banana—152.
Barbeau System of Queen-Rearing—234, 308.
Bartholomew to Florida—351.
Bee Behavior and Queen Introduction—419.
Bee Club Organized—386.
Bee Clubs, Boys' and Girls'—86.
Bee Flowers of North America—115.
Bee Line, What is—422.
Bee Magazine, International—373.
Bee Periodicals, Oldest—10.
Bee Trees—349.
Bees and Fruit—315.
Bees as Trophies of War—156.
Bees and Grapes—161.
Bees Clustered Outside—311.
Bees, Cross—132.
Bees Disappearing—278.
Bees Dying in Winter—133, 422.
Bees, Endurance of—337.
Bees Fighting—419.
Bees, How Many in Pound—314.
Bees in Battle—314.
Bees in the Bush—336.
Bees Leaving Hive—385.
Bees Loafing—313.
Bees Not Working—384.
Bees, Price of—190.
Bees Returning—131.
Bees Smothered—97.
Bees Stinging Horses—314.
Beeswax, Black—129.
Beeswax, Mystic Use of—342.
Beginning with Bees—27, 51, 168, 380.
Beginning With Bees, Boys—199.
Behavior of Bees—349.
Beekeepers By the Way—14, 52, 89, 125, 197, 345, 381, 418.
Beekeeping, Dignity of—127.
Beekeeping in Missouri River Hills—331.
Belgians Revived—156.
Benton's Travels—307.

BIBLIOGRAPHY of—
  Beekeepers' Letter—229.
  Hawaiian Beekeeping—11.
  Porto Rico Beekeeping—156.
  Sweet Clover—84.
Black Bees—63.
Blessed Bees—202.
Bluevine or Climbing Milkweed—123.
Bottoms for Hives—202.
Boys and Bees—306.
Boys Beginning with Bees—199.
British Columbia, Beekeeping in—418.
Brood—62.
Brood Combs Above Sections—96.
Brood, Dead—167.
Brood, Equalizing—240.
Brood in Super—406.
Brood in Winter—28.
Buckeye or Horse Chestnut—299.
Building Colonies for Honey Flow—88.
Building Up Colonies in Spring—79, 131.
Bumblebees and Smoke—409.
Bumblebees' Nest—408.

Cages for Introducing—58.
California, Introduction of Honey Bee Into—268.
California Pioneer, Harbison—122.
California Short Courses—43.
Candy, Boosting—192.
Carbon Disulphide, Use of—98.
Carniola Today—422.
Carniolans—27, 62, 350.
Carpet Grass—16.
Catalpa—278.
Caucasians—24, 350.
Cell, Trips to Fill—206.
Cellar Wintering (See Wintering).
Cellars for Bees—165.
Cement Paper to Metal—240.
Central Plant for Extracting—93.
Certificates for Beekeepers—241.
Chile, Beekeeping in—48.
China Tree, or China Berry—271.
Climbing Milkweed—123.
Color of Bees—26.
Colorado, Comb Honey Production in—374.
Colorado, Trip to—300.
Comb Honey, Selling—311.
Combs, Old—167.
Combs, Old, Using—26.
Contract, What Constitutes—383.

Covers, Metal—313.
Corn, Honey From—49, 99, 100, 126, 205.
Cotton, Honey From—80.
Criticism—373, 415.
Cross Bees—240.
Cryptograms, Do They Cause Disease?—305.

Dandelions—203, 240.
Decoy Hives—133, 420.
Demaree Plan—204, 277.
DeMuth, Geo. S.—89.
Denmark, Prices in—170.
Desertion of Bees—349.
Dickinson of California—52.
Direction, Sense of—21.
Disease Control—46.
Disease Control by Education—84, 123.
Disease Control in Texas—12.
Diseases of the Adult Bee—228.
Diseases, Fumigating for—91.
Division—313.
Division Boards—372.
Dixie Beekeeping—198.
Drone Layer—243,
Drones—Black—349.
Drones in Winter—97.
Dummies vs. Division Boards—372.

Eggs, Fertile—312.
Eggs, Fertilizing Drone—413.
Eggs, Two or Three in Cell—277.
Electrical Imbedding—345.
English Notes—11.
Entrances—53, 203, 240.
Equalizing Brood—348.
Equipment—313.
Examination of Colonies—227.
Exhibit at Chenango Co. Fair—387.
Experiments, Co-operation in—197.
Extension Work on Pacific Coast—133.
Extracted Honey Production—15.
Extracting—313, 421.
Extracting at a Central Plant—93, 206.
Extractor, A New—416.
Extractor of Coveyou—373,

Failure vs. Success—55.
Failures—301.
Farm Manuals—134.
Feeder—A Safe—206.
Feeder, A Simple—92.
Feeding—201, 277, 348, 386, 419, 421.
Feeding in Cellar—26.
Feeding Flour—190.
Feeding in Spring—131.
Feeding in Winter—28, 62,
Female, Deadly—10.
Flax—165.
Florida, Beekeeping in—206.
Florida, Bee Laws of—350.
Florida, Quarantine Law in—300.
Flour, Feeding—190.
Force vs. Education—46,
Foulbrood—97, 132, 166, 201, 238, 240, 312, 313, 348, 373, 385, 420.
Foulbrood, American—299.
Foulbrood Bees, Confining—61.
Foulbrood, Disinfection—98.
Foulbrood, European—58.
Foulbrood, Fumigating for—91.
Foulbrood, Getting Rid of—233.
Foulbrood, Prevention of—376.
Foundation—28.
Foundation, Bottom Starters—240.
Foundation Fastener—62.
Foundation Sagging—164.
Frames—165, 239.
Frames, British—406.
Frames, Deep vs. Langstroth—50.
Frames, Shallow for Brood—120.
Frames, Size of—129.
Frame Spacing—166.
Frames, Spacing Wide—192.
Freight Rates on Honey—228.
French Bee Magazine—85.
Fumigating for Diseases—91.

Gallberry—151.
Gleanings Editor ill—382.
Goldens—98, 168, 205.
Graham, Migratory—125.

Harbison, J. S.—122.
Hares and Bees—347.
Hawaiian Beekeeping—11,
Hawkins to Lewis—205.
Hearing Sense of Bees—164.
Hermaphrodite Bees—93.
Hive Cart, A Useful—419.
Hiveless Bees—274.
Hive Roofs—385.
Hive, Size and Comb Capacity—162.
Hive Stands—202.
Hives—385, 412.
Hives, Jumbo—62, 421.
Hives, Kinds to Use—27, 421.
Hives, Large—22, 96, 304, 337, 386.
Hives, Large Increase With—193.
Hives, Large vs. Small—341.
Hives Long Idea—124.
Hives, Making Large from Small—153.
Hives, Non-Swarming—96.
Hives, One-Story Jumbo or Two-Story Langstroth—309
Hives, 13-Frame or Square—344.
Hives, 20-Frame—202.
Hives, Twin and Others—274.
Holland, Bees in—373.
Honey Cans, Soldering—270.
Honey Comb Production—378.
Honey Exporting—228.
Honey Fermenting—420.
Honey for Home Use—346.
Honey Grading—192.
Honey Grading in New Zealand—371.
Honey, Granulated—411.
Honey Granulation—132, 204, 314, 372.
Honey Heating as it comes from Extractor—21.
Honey,High Priced—350.
Honey, Marketing—237, 241.
Honey Plants—120. 123, 124, 239, 313.
Honey, Scorched—239.
Honey, Selling—192, 267.
Honey, Shipping—338.
Honey, Shortage—275.
Honey, Spinning—132.
Honey, The Bees Analysis—56.
Honey House Floors—166.
Honey Markets—26, 32, 68, 106, 135, 157, 169, 171. 192, 211, 263, 319, 353, 390.
Honey Plants, Some Southern—151.
Honey Prices—85, 301.
Honey Production in Kansas—7.
Honey Production in the Sage District—295.
"Honey Yellow"—233.
Horticultural Complaints—301.
Hydrometer in Commercial Beekeeping—160.

Improving Stock—312.
Increase—96, 97, 166, 205, 385.
Increase With Large Hives—93.
Increase With Pound Packages—16.
Inspection—123, 159, 160,
Inspection in Michigan—242.
Insulators for Beehives—24, 129.
Intensive Beekeeping—119.
Italian Beekeepers, Warning to—156.

Japan, Bees to—155.
Jasmine, Yellow, Does It Poison Bees?—157, 243.
Jumbo and Langstroth Hive—8.

Kansas, Honey Production in—7.
Kindig's Work—351.
Kodaks—385.

Lady Expert With Bees—155.
Langstroth and Jumbo Hive—8.
Laws and Beekeeping—48.
Laying Workers—239, 348.
Legal Service Department—383.
Le Stourgeon, E. G.—197.
Locations—61, 203, 349.
Locations in Florida—84.
Locations in Nebraska—63.
Louisiana for Bees—167.

Macedonian Beekeeping—373.
Mangrove, Black—151.
Markets, Stimulating—49.
Mating, Controlled—273.
Mating of Queens—203.

MEETINGS—
  Arkansas—99.
  Cayuga County—350.
  Colorado—207.
  Idaho—279.
  Illinois—28, 60,350,387.
  Iowa—23, 386.
  Kansas—23.
  Louisiana—11, 315.
  Maryland—350.
  Minnesota—25.
  Mississippi—350.
  Missouri—169.
  Montana—100.
  National—25. 60, 161.
  Nebraska—24, 28, 135.
  New Jersey—25, 350.
  New York—60, 98, 242, 243, 349, 279.
  Omaha—382.
  Ontario—60, 387.
  Pennsylvania—23. 207, 279.
  St. Louis—207, 314.
  Tennessee—279, 350.
  Texas—28, 133,
  Washington—386, 422.
  Western N, Y.—25.
  Wisconsin—63, 133, 243, 279, 422.
  Wyoming—279.
Merrill of Kansas—14,
Mexico, Beekeeping in—87.
Microscopic Studies—48, 242.
Migratory Beekeeping—342.
Millen to Ontario—279, 345.
Miller, C. C., to Have Rest—384.
Miller's Answers, Dr.—26, 61, 96, 129, 165. 201, 238, 277, 311, 348, 384, 419.
Minnesota Inspection—11.
Moisture—167.
Morale of Colonies—228.
Morgan, R. A.—381.
Morocco, Beekeeping in—191.
Moths—202, 276, 348, 385, 421.
Moths in Extracting Combs—263.
Mould as an Enemy of Bees—301.
Moving Bees—27, 28, 98, 130, 240, 385.
Moving Short Distances—166.
My Neighbor's Garden—189.
McCray, A. H.—243, 264.

Nails, Naming—346.
National Association, Policy and Aims of—272, 340, 371.
National Forests, Bees in—91.
Nectar and Nectar Secretion—403.
Nectar Secretion and Temperature—414.
Netherlands Bees—373, 379,
New Zealand Honey Grading—371.
Nosema-Disease, Observations On—223, 260, 298.
Nuclei Without Queens—130.

OBITUARY OF—
  Baldridge, M. M.—100.
  Benton, Frank—197.
  Comire, O. A.—60.
  Dines, Oscar—135.
  McCray, A. H.—243, 264.
  Miller, Hamlin B.—99.
  Pryal, W. A.—61,
  Secor, Eugene—207, 230.
  Thornton, John A.—135.
  Theiler, Jos.—373.
  Werner, L.—133.
Ontario, New Building for—422.
Organization of Beekeepers—229,
Orient, Beekeeping in—194.
Outapiaries, Success With—367.

Packages (See Pound Packages).
Packing Bees—313.
Packing Cases—28.
Paralysis, Is It Caused by Cryptogams?—305.
Paralysis of Bees—89, 293.
Parks, H. B. to Texas—279.
Parthenogenesis—170,
Partnerships—239.
Paste for Tin—62, 99, 135, 169, 242, 351.
Pasturage—348.
Pennyroyal—151.
Physiology of Bees—11.
Pioneer Bee History—306.
Plant Books—206.
Poison, Is Yellow Jasmine?—157.
Poison Ivy—63.
Pollen—167, 168.
Porto Rico Beekeeping—156.
Pound Packages—27, 61, 120, 129, 130, 203. 271.
Pound Packages by Parcel Post—164.
Pound Packages, Increase With—16.
Pound Packages, Releasing Bees From—22.
Pound Packages, Shipping—58.
Profit From Bees—349.
Prolific Bees—169.
Propolis Poisoning—98.
Punic Bees—23, 190, 417.
Purity of Bees—240.

Queen Breeder, A Successful—236.
Queen Breeders Swamped—242.
Queen Breeders vs. Queen Buyers—264.
Queen-cells—28, 203, 239.
Queen-cells Not Destroyed—278.
Queen Condition After Natural Swarming—336.
Queen Excluder—277.
Queen Introduction—28, 309.
Queen Introduction and Bee Behavior—419.
Queen Introduction, Smoke Method—233.
Queen-mating Nucleus—54, 61.
Queen Mating Over Colonies—57, 164.
Queen Mating, Pedigreed—340, 422.
Queen Rearing—62, 131, 165, 203, 239, 312.
Queen Rearing. Barbeau System—234, 308.
Queen Rearing Over Queenright Colonies—235.
Queen Rearing, Wholesale—259.
Queens—348, 349, 385, 421.
Queens, Behavior of—314.
Queens, Breeding, Selecting—244, 310.
Queens, Clipping—239, 386, 420.
Queens, Caging—278, 348, 381.
Queens, Confining During Honeyflow—100,
Queens, Finding—129, 207.
Queens Leaving Hive—239.
Queens Lost on Mating Trip—242, 420.
Queens, Kind of—420,

Queens, Marking—124, 165.
Queens, Mating—204.
Queens, Obstinate—231.
Queens, Overworking—406.
Queens, Painting—21.
Queens, Prolific—48.
Queens, Refrigerating—156.
Queens Reared from Grafted Larvæ—134.
Queens, Two in One Hive—312, 410.

Records—202, 267.
Red-bud—191.

REPORT FROM—
  Arizona—99.
  Idabo—99.
  New York—19.
  Ohio—9.
  Tennessee—134.
  Texas—99.
  W. Virginia—134.
Requeening—26, 62, 97, 166, 167, 203, 263, 312.
Roaches—132, 202.
Robbers, Queenless—311.
Robbing—158, 277.
Rosser, Jno. H., in Hamilton—263.
Royal Jelly—48, 166, 168.

Sagging, Prevention of—199.
Samaritans, Are We?—337, 370, 407.
Santo Domingo—343.
Sections—62, 202.
Sections, Old—131.
Senses of Bees—226.
Sense Organs of the Bee—57.
Separating Can for Wax and Honey—83.
Shade Boards—348.
Shade for Bees—346, 386.
Shaking Bees—62, 313.
Shares, Bees on—11, 18, 132.
Shed for Bees—97.
Shipping Bees—130.
Shipping Bees in Refrigerator Cars—381.
Shipping Bees, Is Water Necessary?—413.
Shoestring Vine, or Bluevine—124.
Short Course, New York—121.
Short Course, Ontario—133.
Short Courses—135, 380.
Short Courses, California—11, 43.
Sight of Bees—97.
Smokers—132.
Snow About Hives—49.
Snow, Ashes on—100.
Soldering Honey Cans—270.
Soldier Beekeepers—302.
Soldiers, Beekeeping for Disabled—229, 279.
Soldiers Raising Bees—127.
Sorghum for Bee Feed—167.
Spacing for Combs—815.
Spangler, D. W.—418.
Spanish Needle for Winter Stores—268.
Spraying During Bloom—59, 170.
Spring Building Up of Colonies—79.
Spring Losses—24.
Spring Management—85.
"Springing Bees"—126.
Stingless Bees—239.
Stings of Bees—342, 384.
Sugar, Raw for Feed—98.
Summer Management—92.
Supers, Care of—131, 238.
Supers With Glass—62.
Swarm Control—97, 129, 132, 203, 239, 385.
Swarm Control With Comb Honey—188, 266.
Swarm Control with Extracted Honey—187
Swarming—131.
Swarming Impulse—55.
Swarms, Drawn Combs for—129.
Swarms, Hiving—349.
Swarms Leaving—277.
Sweet Clover—166.
Sweet Clover, A Booster for—381.
Sweet Clover, A Weed—410.
Sweet Clover, Blue Flies on—347.
Sweet Clover in Montana—19.
Sweet Clover, Yellow—99.
Switzerland—24
Syrup for Bees—202.

Temperature and Nectar Secretion—414.
Temper of Bees—170.
Texas Condition, Change in—10.
Texas, Disease Control in—12.
Texas Experimental Apiary—135.
Texas, Extension Work in—60.
Texas Inspection Meeting—128.
Texas to Experiment—157.
Theiler, Jos., Death of—373.
Tins for Honey—277.
Tobacco Honey—63, 119, 125.
Transferring—96, 129, 165, 201, 238, 278, 349.
Transferring From House Wall—167.
Translations—300.
Traps—203.
Trips, How Many for a Bee?—300.
Trucks, Use of—412.

Uniting—27, 62.
Uniting Bees—152, 239.

Ventilation of Hives—275.
Virgin Queens—167.
Virgin Queens, Care of—17.
Virgin Queens, Introduction—90, 133, 170, 241, 277, 306.
Virginia Islands, Honey on—167.

War Losses of Beekeepers—84.
Water, Is it Necessary in Shipping Bees? 407, 413.
Wax Rendering—162.
Weak Colonies, Saving—205.
Winter Case, A New—13.
Winter Case, Demuth—421.
Winter Equipment—313.
Wintering—61, 165, 203, 348, 386, 420.
Wintering in Cellar—26, 62, 303, 349, 384.
Wintering in Colorado—93.
Wintering in 8-Frame Hives—93.
Wintering in Small Buildings—61.
Wintering Out of Doors—83, 238.
Winter Killing—240.
Winter Packing—129, 166.
Winter, Preparation for—263.
Winter Problem of South—49.
Winter Protection, Value of—334.
Winter, Room for—312.
Winter Stores—301.
Wire Kinks—416.
Wisdom of the Bee—94.
Women, Beekeeping for—22, 95, 168, 204, 243, 310, 383.
Worker Bee, Tools of—20.

Yellow Jackets—97, 169, 206, 242.
Yellow Jackets in a Beehive—411.
Yellow Jasmine (See Bee Jasmine).
You Can if You Will—158.

# ILLUSTRATIONS

Allen, Grace—127.
Automobile and C. D. Stuart and Wife of California—94.

APIARY OF—
  Allen, Grace—127.
  Bunger, Roy—369.
  California—368.
  Colorado—369.
  Dagestan—145.
  Danielson, D.—93.
  Diemer, J. F.—368.
  Harrison, J. A.—253.
  Hutchinson, Edw.—164.
  Iowa (See Western Honey Producers).
  Jaffa—194.
  Keene, O. A.—9.
  Krome—F. W.—126.
  Macedonia—380.
  Maple Honey Co.—92.
  Mendleson, M. H.—297.
  Mississippi River—198.
  Montezuma Mountain—306.
  Palmer—C. B.—17.
  Provensal, P.—73.
  Richardson—50.
  Rauchfuss—374.
  Sedes—380.
  Simmons, L. O.—227.
  Small, Asa V.—309.
  Washington Experimental—225.
  Welch, E. A.—367.
  Western Honey Producers—331, 332, 333.
  Wilson—331.
  Wing, J. E.—260.
  White Sulphur Springs—340.
Australian View—298.

Banana—152.
Barbeau Preparing Queen-Cells—234.
Barrels for Honey—339.
Bean, Wild—116.
Beaver Dam in Colorado—376.
Bee-Balm—117.
Bee Laboratory of Maryland—289.
Blue Curl—189.
Benton Caravan Crossing Persia—307.
Benton, F.—308.
Boy and Girl Club Pictures—86, 87, 88.
Box Hive Dissected—7.
Bringing Home the Honey—346.
Brown, Miss, of Hawaii—155.
Bryant, D. M., in Rosary—237.
Buckeye or Horse Chestnut—299.
Bunger, Roy and Wife—8.
Bumblebees' Nest—409.
Bumblebee Queens—408

Cage, Smith's Push-in—58, 69
Camel Carrying Honey—195, 196
Carload of Bees Going South—198.
Carpet Grass—16.
Cherries in Montana—19.
Chinaberry Tree of Florida—271.
Clover in Bloom—200.
Club Boys Getting Instructions—382.
Celeman, Prof. G. A., of California—47.
Cotton Plant in Bloom—80.
Cotton Ready to Pick—81.
Crawford, H.—375.
Crawford Packing House—377.

Demuth, G. S.—44, 89.
Dickinson C. B.—52.
Diemer's Adjustable Entrance—53.
Display, Kansas—1.
Eucalyptus of Australia—266.
Exhibit, British Columbia Flower Show—278
Extractor of Livingston—416, 417.
Frames Showing Size and Shape of Cluster and Honey Circle—51.
Frame Wiring, Miller Method—199.

Galberry—153.
Gentian, Fringed—117
Giant Bees—Benton's Travels—310.
Gladiolus Flower—156.
Graham, Migratory—125.
Gray Gum—265.
Guatemalan Ant Acacia—405.

Harbison Canyon—122.
Harbison's Former Home—123.
Harbison Mountain—109.
Hedge Nettle, Honeybee On—403.
Hive Cart of H. G. Sanders—419.
Home, Sweet Home—163.
Honey All Time in Air—189.
Honeybee, Glands of—56.
Honey Heater of Collier Bros.—21.
Honey House in Sections—334.
Honey House of C. B. Palmer—18.
Honey House of H. E. Roth—268.
Honey Sign of Roth—267.
Horse Chestnut or Buckeye—299.
Hospital Colony for Foulbrood—333.
Huckleberry, Black—119.

Ishida, T. K.—188.

Johennig, Shuley V.—23.
Justice, C. B.—45.

Ladyslipper—116.
LeStourgeon, E. G.—197.
Loading Comb Honey—269.
Locust, Black—116.
Livingston Extractor—417.

Log Hive—8.

Mangrove Bloom—151, 152.
Mating Nucleus Box of C. B. Bankston—54.
McCray, The Late A. H.—264.

MEETINGS—
  California—46.
  Kansas—8.
Mendleson Pictures—295, 296, 297.
Mendleson, M. H.—44.
Mendleson Honey House Interior—295.
Merrill of Kansas—14.
Merrill Experimental Colonies—335.
Millen of Ontario—345.
Monkey Flower—118.
Morgan, R. A.—381.
Moving Bees in Steamer, Sommerfield—198.
Moving Queen-Rearing Outfit—261.

Nicholls, H. E.—158.
Nosema Affected Bees' Stomach—223, 224.

Paddock, F. B.—378.
Palms in Cuba—15.
Pennyroyal—154.
Persimmon Tree and Swarm—270.
Phillips, Dr. E. F.—43.

Queen Cells of Barbeau—234, 235.
Queen Rearing Outfit of Wing, on Move—260.

Raisin Grapes—161.
Rankin, D. F.—169.
Rauchfuss, H.—375.
Red Bud—191.

Sanders' Hive Cart—419.
Secor Home—230, 231.
Secor, The Late Eugene—217.
Sheppard, W. J. Experimental Garden—226.
Shipping Cases for Honey—338, 339.
Skull Cap—117.
Skeps—379.
Sladen's Experimental Plan With Two Queens in One Hive—119.
Smith, Jay, on Ostrich—47.
Soldier Beekeeper—302, 303, 415.
Sommerfield Moving Bees—198.

Spangler, D. W.—418.
Spangler Cabin in Mountains—375.
Sprengel Book—404.
Stomach of Nosema Bees—223, 224, 225.
Stretched Cells—347.
Swarm in Persimmon Tree—270.
Swarm on Court House Cornice—274, 275.
Sweet Clover in Montana—19.

Tanquary, M. C.—378.
Tarweed—190.
Terisse, Andre, Home of—57.
Texas Inspection Force—12.
Texas Map Showing Honey-Producing Regions—82.
Thirty-Ton Crop of Mendleson—296.
Tombu, Leon—370.
Transferring—12.
Trestle for Beehives—16.
Truck, Atwater's—413.

Ward, M. G., Grafting Cells—
Warren, J. H., and Log Hive—342.
Wasp Nest in Beehive—410, 411, 412.
Wax Press, Home Made—162.
Wax Separator of Crane—83.
Western Honey Producers' Plant—333.
White, G. F.—262.
Wing Apiaries—260.
Wing Family, J. E.—259.
Wing Queen-Rearing Outfit on Move—260.
Winter Case of Reynders—13.
Winter Packed Bees in Colorado—93.
Women Workers in Mendleson Yards—296.
Wonga Wonga Vine—298.

Yellow Rattle—118.

## CORRESPONDENCE

Abushady, A. Z.—376.
Allen, Mrs. Armstrong—127.
Anderson, Bruce—243
Appleton, F. G.—268.
Archdekin, J. F—11.
Atchley, W.—170.
Attridge, A. J.—417.
Atwater, E. F.—236, 412.

Baldensperger, P. J. 85, 194.
Barbeau, A.—300.
Barrat, G.—413.
Bell, J. A.—207.
Best, H.—134.
Blaker, C. D.—159.
Bohrer, G.—8.
Bonney, A. F.—99, 164, 205, 243, 270, 347, 411.
Brenner, H.—89, 125, 342.
Bridge, A. M.—276.
Broomene, T. J.—91.
Brunnich, K.—56.
Bunger, Mrs. R.—168
Burton, S. H.—124.

Caillas, A.—232.
Cameron, A. D.—125.
Carling, A.—206.
Carr, E. G.—236.
Cole, E. M.—306.
Copeland, A. T.—63.
Cory, E. N.—350.
Coverdale, F.—58.
Craft, P. J.—126.
Craig, W.—205.
Crane, J. E.—82, 164, 226, 237.

Dadant, C. P.—50, 79, 158, 187.
Dadant, Chas.—55.
Dadant, L. C.—162.
Dadant, M. G.—171, 338, 367.
Dalton, J.—412.
Davie, C. F—197, 344.
DeLacy, J. T.—119.
Diemer, J. F.—53, 152, 241.
Dixon, Gordon—133.
Dougherty, J. A.—9.
Durham, W. W.—63.
Durtschi, A.—205.
Dye, A. G.—135.

Evitt, E. E.—135.

Fairchild, A. H.—63.
Flood, L.—169.
Fountaine, O.—308.
Fowler, C. E.—98, 341, 415.
Fox, Elias—126, 206, 314.
Frenay, P. J.—379.

Gallup, E.—14.
Gray, W. H.—345.
Green, J. A.—346.
Greiner, G. C.—19, 231, 271.
Griffiths, W.—371.

Harbison, J. S.—268.
Hassinger, E.—267.
Harting, J. W.—127.
Hawkins, K.—198, 314, 414.
Hendricks, Jno.—24.
Herman, J. M.—99.
Hogg, B. Y.—206.
Hopkins, I.—134, 160, 371.

Justice, C. B.—273, 371.

Kaler, S.—100, 170.
Kaufman, J. D.—19, 99.
Keene, O. A.—23.
Kelsey, W. C.—170.
Kerr, L. E.—346.
Kindig, B. F.—242, 340.

Lantis, W. W.—314, 350.
Latham, Allan—154, 233.
Lee, A. W.—124.
Leonard, L. D.—100.
LeStourgeon, E. G.—128.
Lovell, Jno. H.—115.
Luebeck, F. W.—133.
Lundie, L. B.—18.
Lusher, A. E.—413.

MacDonald, D. M.—20, 94, 126.
Markham, F.—25.
Merrill, J. H.—334. 347, 410.
Millen, E. E.—158, 201.
Miller, C. C.—17, 26, 55, 61, 96, 129, 165, 188, 201, 235, 238, 277, 311, 348, 384, 419.
Miller, A. C.—162, 235, 274, 299, 309, 419.
Miller, E. S.—199.
Moore, Ray—91.
Murry, H. D.—92.
Myers, H. M.—25.

Newell, W.—350.

Ohlinger, C. F.—346.
Okerlundt, E.—199.

Palmer, C. B.—92.
Pammel, L. H.—410.
Parks, H. B.—408.
Parrich, M. S.—99.
Pellett, Frank C.—46, 59, 80, 122, 151, 160, 230, 259, 295, 331, 374, 411.
Pennell, R. L.—100.
Pettit, Morley—93, 206, 275, 335, 381.
Pettit, R. H.—24.
Pettys, G.—126.
Phillips, E. F.—302.
Provensal, P.—87.

Queen, D.—124.

Ragland, E. A.—123.
Rankin, D. F.—169.
Rayment, T.—265, 297.
Reynders, C.—13.
Rice, J. W.—99.
Richardson, F. B.—267, 416.
Ritland, O.—15.
Robinson, T. P.—125.
Rockwell, W. K.—63.
Rojina, F. A.—422.
Rosensweet, Nahman—351.
Rossnick, W. C.—153.
Rouse, J. W.—99.

Sanders, H. W.—419.
Sanderson, J. R.—242.
Schnack, C. F.—169.
Schumacher—24.
Scott, J S.—88.
Shallard, Major—233, 272.
Shawler, L. A.—164.
Sheldon, C. E.—99.
Sheppard, W. J.—58, 93.
Sherman, S. L.—201.
Sladen, F. W. L.—118.
Smith, E. C.—155.
Smith, E. D.—242.
Smythe, F. R.—266.
Sommer, A.—170.
Steinbrunn, W. C.—306.
Stockli, Fern—21.
Stuart, C. D.—16, 189.
Swarts, D. L.—170.

Tabusteau, H.—343, 373.
Taylor, H. M.—52.
Tillson, E. V.—98.
Timm, O E.—24.
Todd, F. D.—418.
Toureand, Q.—191.
Townsend, T. R.—414
Trelease, W.—403.
Trelex, Terisse—57.
Tyler, F.—99.

Vanden Berg, J.—16.
Van Rouzelen, A. G.—100, 314.

West, N. D.—204.
Wharton, C.—205.
White, G. F.—223, 260, 298.
Wilson, Emma—22, 95, 168, 204, 243, 310, 383.

York, Geo. W.—279. 410, 422.

## CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted for three cents per word, with no discounts. No classified advertisement accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

### BEES AND QUEENS

FOR SALE—Three-band Italian queens.
W. T. Perdue, R. D. No. 1, Fort Deposit, Ala.

PACKAGE BEES—April and May delivery — 1-lb. package, with untested Italian queen, $3.60; 25 1-lb packages, with queens, $3.25 each; 2-lb. package, with queens, $4.50; 25 2-lb. packages, with queens, $4.25 each. Safe arrival guaranteed Further particulars upon request.
Caney Valley Apiaries, Bay City, Texas,.
J. D. Yancey, Mgr.

FOR SALE—125 colonies Italian bees, 10-frame, 2-story; modern; A-1 condition; no disease.
Box 151, Tucson, Ariz.

FOR SALE—Italian queens, from best disease resistant stock, mailed as soon as hatched. Improved method for introducing with every order. Prices, April to October, 1, 75c; 10, $6; 50, $26. Order now for spring delivery.
James McKee, Riverside, Calif.

FOR SALE—Alfalfa clover blend honey in 60-lb. cans; sample if desired, $12.50 per can, $2 per case, f. o. b. here.
W. E. Liebert, St. Anthony, Idaho.

CASH for extracted honey, white or amber, in 5 or 10-lb. cans. Send sample and say price.
T. Lang, 1572 N. Halsted St., Chicago, Ill.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger add elsewhere.
Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

MAKE YOUR OWN FOUNDATION and earn money making foundation for others. The simple, easy way, machine and outfit; hand, $100; electric power, $350.
Grand Haven Pattern Works,
Grand Haven, Mich.

BEES AND QUEENS from my New Jersey apiary.
J. H. M. Cook,
1Atf 84 Cortland St., New York City.

FOR SALE—Italian bees and queens (the kind that fill from 2 to 6 supers). Bees, $12 a colony; queens, $2 each, 6 for $11. Queens go by mail; bees by express. Order direct from this ad.
Miss Lulu Goodwin,
Mankato, Minn.

GOLDENS that are true to name. Untested queens, 1, $1.25; 6, $6.50; 12, $11.50; 50, $40; 100, $75.
Garden City Apiaries,
San Jose, Calif.

FOR SALE—Leather colored Italian queens, tested, June 1, $1.50; untested, $1.25; $13 a dozen.
A. W Yates,
15 Chapman St., Hartford, Conn.

"SHE SUITS ME" Italian queens, $1.15 each, from May 15 to October 15; 10 or more, $1 each.
Allen Latham, Norwichtown, Conn.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1.
J. F. Diemer, Liberty, Mo.

FOR SALE—100 colonies of bees, most all in new hives with Hoffman frames. Plenty of stores. Address
James Johnson,
Box 265, Pocahontas, Ark.

### HONEY AND BEESWAX

WANTED—Fancy Clover comb honey.
The Forest Honey Co.,
2323 S. Woodstock St., Philadelphia, Pa.

WANTED—To buy, comb honey.
Edw. A. Winkler, Joliet, Ill.

FOR SALE—25 cases fine clover honey in new 60-lb. cans.
Edw. A. Winkler, Joliet, Ill.

FOR SALE—California Wonder corn for seed. A new white dent. Has averaged as high as six good ears per stalk, or over 300 bushels per acre. Also 50 tons of ensilage. A great money maker. Order now. Price 35c per lb.
James McKee, Riverside, Calif.

WANTED—To buy—Extracted honey. State price, how packed. Send sample.
Harmony Bee and Honey Co.,
White Bear Lake, Minn.

WANTED—Light extracted honey, any amount. Send sample and best cash price f. o. b. Ft. Collins, Colo.
A. A. Lyons, Ft. Collins, Colo.

FOR SALE—Light amber extracted honey; fine quality for table. Put up in 60-lb cans.
A. L. Kildow, Putnam, Ill.

FOR SALE—New crop clover honey; put up in new 60-lb cans, 2 to the case, 25c per pound, f. o. b. here.
W. B. Crane, McComb, O.

OUR CROP OF HONEY is now ready for shipment. It is a good grade white clover with a very small trace of basswood, almost water white. It is put up in new 60-lb. tin cans, two to the case. This honey was all produced by ourselves above queen-excluders, in nice white combs. Then combs were provided so that no honey was taken off until after the season, when it was thoroughly cured by the bees. It costs more to raise a crop of honey this way, as we do not get as much per colony, so we have to have a little more money for this fancy article than the ordinary honey on the market. Try a small order and we feel sure you will buy no other.. We can furnish at the following prices, f. o. b. Northstar: one 60-lb. can $15.50; in cases of two cans, $80 a case, in any sized orders. The crop is short this year and will not last long at these prices. We feel quite sure that the price will not be any lower, so do not be disappointed by not ordering early if you are looking for honey as good as money can buy.
D. R. Townsend, Northstar, Mich.

FOR SALE—New crop clover extracted honey, two 60-pound cans to case, 25c per pound. Buckwheat and clover mixed, about half and half, 20c per pound.
H. G. Quirin, Bellevue, Ohio.

WANTED—White clover or light extracted honey. Send sample; state how honey is put up and lowest cash price delivered at Monroe; also buy beeswax.
E. B. Rosa, Monroe, Wis.

WANTED—Comb and extracted honey; send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter. D. A. Davis,
216 Greenwood, Birmingham, Mich.

WE BUY HONEY AND BEESWAX—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section and sections to a case. Extracted honey, quantity, quality, how packed, and send samples. Chas. Israel Bros. Co.,
486 Canal St., New York, N. Y.

WANTED—Honey, in light and amber grades. Send sample, stating quantity, how put up, and lowest cash price delivered in Spring Valley. Ed. Swenson, Spring Valley, Minn.

FOR SALE—15,000 pounds of fine clover and basswood honey. The best offer takes it if satisfactory. Chester E. Keister, Clarno, Wis.

WANTED—Comb, extracted honey and beeswax.
R. A. Burnett & Co.,
6A12t 178 S. Water St. Chicago, Ill.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

## FOR SALE

FOR SALE—Gleanings, September, 1907 to December, 1916; all American Bee Journals from January, 1910.
F. A. Wicklein, Percy, Ill.

FOR SALE—3 doz. queen-excluders, wood, zinc; used 2 seasons; no disease; Mondeng manufacture.
F. O. Donnell, Rush City, Minn.

FOR SALE—38-35 Marlin repeating rifle, $25; excellent condition. Will trade for honey extractor; must be in good shape, not smaller than size 15.
L. C. Johnson, Rid, Wis., R. 3.

FOR SALE—Well-improved 2-acre place two miles north of Mascoutah, on public road.
Mike Rothaug, Mascoutah, Ill., Rt. 2.

FOR SALE—5x7 Graphic and outfit, in A-1 condition. If interested in a bargain, write for detail, description and price, Walter Timmerman, 2107 N. Tremont St., Kansas City, Kans.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash

FOR SALE—200 new 10-frame cross style, reversible bottom-boards at 50 cents each; 200 new flat reversible covers at 60 cents each; 5,000 all-wood extracting frames at $5 per 100; 100 new Alexander feeders at 20 cents each; 150 Boardman feeders without cap or jar, at 12 cents each. All above goods are factory made and have never been used. I also have some 8 and 10-frame hives complete which space does not permit to mention here. Write
M. E. Eggers, Eau Claire, Wis.

WANTED—An experienced man for 1920 to work outyards for bulk comb honey. References required.
John W. Cash, Bogart, Ga.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

## WANTED

WANTED—Barnes Saw Table No. 4. Give particulars and price in first letter.
L. E. Miles, Box 407, Balboa, Canal Zone.

WANTED—To buy the sweet water from melting old combs or cappings.
Edw. A. Winkler, Joliet, Ill

WANTED—Cheap for cash, honey extractor, Winchester 12-gauge shotgun, Stevens double-barrel. Lorenzo Clark, Winona, Minn.

WANTED—For exhibition purposes, naturally built combs, partly or fully drawn out. Such combs should not have over 25 per cent dronecomb and should be the product of the bees themselves, without use of foundation. Write us describing what you have and we will name our price on same.
American Bee Journal, Hamilton, Ill.

WANTED—Several one-frame observation hives with supers.
Taylor, Box 127, Sacramento, Calif.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.
Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

## SUPPLIES

WANTED—About 20 10-frame hives, 50 extracting supers, hand extractor and general supplies. Stanthrop Farm, Holliston, Mass.

MY PERFECT FEEDER (improved). Sample tool and printed instructions, 24c. Get ready for spring.
Dr. Bonney, Buck Grove, Iowa.

BEEKEEPERS' SUPPLIES at reasonable prices. Elton Warner,
150 Cumberland Ave., Asheville, N. C.

FOR SALE—New; two 5-gallon cans in a cleated end case at $1.20 per case, f. o. b. your station. Direct from factory.
Edw. A. Winkler, Joliet, Ill.

FOR SALE—New cypress hives, reversible bottom-boards, telescope metal covers, self-spacing frames, of quality and price that will please you. Manufactured by myself. Write for particulars.
O. L. Rothwell, Gillett, Pa.

SEND us a list of goods wanted and will quote you lowest prices. We are the money-saving house. Price list free. Try us.
H. S. Duby & Son, St. Anne, Ill.

## SITUATIONS

WANTED—One or two good queen-rearing men to begin work February 15, 1920.
Nueces County Apiaries, Calallen, Texas.

WANTED—An experienced farmer and beekeeper wants a position in an apiary in the State of Florida. Chas. Ramig,
Route 2, Manchester, N. H.

WANTED—Good man who knows the bee business. Permanent position.
Geo. E. Duis, Grand Forks, N. Dak.

WANTED—Experienced beeman by year, to begin in January; straight salary, or salary and percentage. Give age and experience.
Students' Bee & Honey Co.,
1716 Rose St., Berkeley, Calif.

WANTED—To correspond with beemen who can use black bees in gums with queens, or in packages without queens.
H. E. Sanders, Kentwood, La.

## MISCELLANEOUS

WANTED—Beeswax, old combs and cappings to render on shares. Will pay highest market price and buy your share of the beeswax.
F. J. Rettig & Sons, Wabash, Ind.

## QUEENS, SELECT THREE BAND

**WRITE FOR PRICES**

**HARDIN S. FOSTER** COLUMBIA TENN.

## RABBIT SCHOOL

THERE IS BIG MONEY AND GENUINE PLEASURE FOR YOU in the fascinating Rabbit Industry — *But You Must Know How.* Use the knowledge of the best brains in the business and *Start Right.* Send for free information about Rabbit Keeping, and full particulars *Today.* GIBSON'S CORRESPONDENCE SCHOOL OF RABBIT HUSBANDRY (Supervised by Judge Chas. S. Gibson), 5152-S, W. Madison St., Chicago, Ill.

## PAINT WITHOUT OIL

**Remarkable Discovery That Cuts Down the Cost of Paint Seventy-Five Per Cent.**

**A Free Trial Package is Mailed to Everyone Who Writes.**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder, and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone, or brick; spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 23 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

## The Townsend Tar Paper Method of Packing

This method of packing for outdoor wintering has given such excellent results that it is now used exclusively by E. D. Townsend & Sons, Northstar, Mich., on their entire 1100 colonies. This is not a mere paper wrapping, as packing material is used at sides as well as top. How it is done, is fully described (with illustrations) by Mr. Townsend in the November number of the Domestic Beekeeper. This issue also contains an excellent article on wintering by Mr. Jay Smith, well known queen breeder and Government extension lecturer.

You will want to read both of these articles—and we want you to do so. Here is our special offer: Send us $1.00 and we will mail you this November number of the Beekeeper and continue your subscription to the end of December 1920—14 months for $1.00. Do this today and our word for it you will not regret it. Add 15c extra for Canada postage; 25c for foreign. Address

**THE DOMESTIC BEEKEEPER**
**ALMONT, MICH.**

"falcon" **BEE SUPPLIES** "falcon"

HIVES, SUPERS, FRAMES, SECTIONS, FOUNDATION

**In fact anything in the line of Bee Supplies**

Have you ordered your supplies yet for the season of 1919 which is now with us, or are you waiting for the last moment to come around when the supplies now carried in stock will be nearly exhausted, or the shipping department so busy that they will not be able to give you the quick service which you naturally expect? Just stop and think what would happen if all beekeepers would do this. To relieve the situation and to help conditions in general, get your order in at once.

We are prepared to make immediate shipments from our large warehouses, which were packed to the brim before the season started.

You all know what the **"Falcon"** line is, and you ought to know what the **"Falcon"** service is. If you never ordered from us before, better let us have the next order to convince you not only for once, but forever.

Send for the Red Catalog and "Simplified Beekeeping"

**W. T. FALCONER MANUFACTURING CO., Falconer, New York**

**Where the Best Beehives Come From**

A NEW BEE BOOK

**by the Associate Editor of American Bee Journal**

**Beginner's Bee Book by Frank C. Pellett**

**Just issued from the press of the Lippincott Co., Philadelphia.**

Attractive cloth binding, nearly 200 pages, illustrated. Price, postpaid, $1.25.
With a years subscription to American Bee Journal, both $2.00.

Other books by the same author:—

**Productive Beekeeping,** 320 pages, a complete manual of commercial honey production. Price $2.50. With Beginner's Bee Book, both $3.50.

**Practical Queen Rearing.** 105 pages of boiled down information about all practical methods of rearing queens. Price $1.00. With Beginner's Bee Book, both $2.00.

**Our Back Door Neighbors.** A book of nature tales splendidly illustrated with photographs. Price $1.50. With Beginner's Bee Book, both $2.50.

Special price for all four books, $5.50. All four books and American Bee Journal one year, $6.25.

AMERICAN BEE JOURNAL, Hamilton, Illinois

**BEES BY THE POUND**

Booking orders now with 10 per cent down, balance just before shipping. For full remittance with order offer the following discounts: 5 per cent for October, 4 per cent for November, 3 per cent for December, 2 per cent for January. We have shipped for several seasons thousands of pounds all over the United States and Canada. Guarantee shipment to be made on time. Free Circular explains, also gives prices on Bees by Parcel Post, Nuclei, etc.

Prices F. O. B. here, by express.

1 pound package bees, $2.40 each; 25 or more, $2.16
2 pound package bees, $4.25 each; 25 or more $3.83
3 pound package bees, $6.25 each; 25 or more, $5.62
Add price of queen wanted when ordering bees

QUEENS

Untested, $1.50 each; 25 or more $1.35.
Tested, $2.50 each; 25 or more, $2.25
Select Tested, $3 each.

**NUECES COUNTY APIARIES** E. B. AULT, Prop. Calallen, Texas

**Don't stop advertising.**

because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

EAT HONEY
NATURE'S OWN SWEET—AIDS DIGESTION

Price of 1,000 gummed 35c.

**American Bee Journal Hamilton, Illinois**

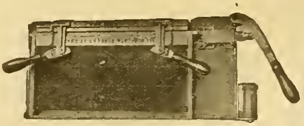
**WESTERN BEEKEEPERS!**

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey-Producers' Association**
**1424 Market Street, Denver, Colo.**

**BEST GOLDEN ITALIANS**

**BEN G. DAVIS,** SPRING HILL TENN.



PAT. JULY 30, 1918

C. O. BRUNO NAILING DEVICE

*Made for the Huffman Brood Frames.* A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE $7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

# ROOT SERVICE

was greatly extended when the Kretchmer Manufacturing Co., of Council Bluffs, was reorganized under the new corporate management and name, "The A. I. Root Co., of Iowa. Located in the best shipping center of the great Middle West, the new Company will be in the position not only to give you prompt and complete service, save you freight and time, but also to furnish you with the Root guaranteed line of supplies.

The A. I. Root Co. of Iowa places itself at your service, and is anxious to aid you in making Beekeeping more interesting, more productive and more profitable.

As a means to this end the Company is installing extensive new machinery, such as the Airco Wax Machines and the Airline Honey-Blending and Bottling Machines. Be certain to write us about the wax you want rendered. or which you have for sale; also, about your honey.

The A. I. Root Co. was incorporated under the laws of the State of Iowa in November, 1919. There is still some stock available for investment.

For guaranteed supplies, prompt service, quick delivery over the shortest possible route, and for a safe, sane and profitable investment, write

**The A. I. Root Co.**

**Of Iowa**

COUNCIL BLUFFS, IOWA

# MONEYCOMB

## THE ALUMINUM HONEYCOMB

### THE WAY TO GREATER PRODUCTION

We are shipping **"MONEYCOMBS"** all over the civilized world, their success is tremendous.

The question is not, can you afford them, but how can you do without them? Make your bees be efficient.

Beeswax is the most costly product of the honeybee and since wax for comb building can only be produced at the expense of many times its weight in honey it is well that the ingenuity of man has invented one of the greatest aids to profitable beekeeping—the Aluminum Honeycomb.

With **MONEYCOMB** you can:

1. **Produce more honey**
2. **Extract cleaner, no breakage**
3. **Control all disease**
4. **Raise more brood**
5. **Save loss from melting and destruction by animals and insects**

"The Aluminum Comb 'MONEYCOMB' is here to stay; its assistance to beekeepers is invaluable.
"H. B. PARKS, State Apiary Inspector of Texas."

"My honeyflow was so light the bees would not draw out the foundation. I was compelled to use aluminum combs, 'MONEYCOMBS,' for brood rearing, and they proved an unqualified success.
"GEORGE D. SHAFER, Palo Alto, Calif."

"My experience with 'MONEYCOMBS,' the aluminum honeycomb, caused me to rank it with the centrifugal extractor.
"A. Z. ABUSHADY, editor of 'Bee World' and Secretary of Apis Club, Benson, Oxon, England."

"I have conducted exhaustive experiments with 'MONEYCOMB,' the aluminum honeycomb, and can heartily recommend it as the most satisfactory honeycomb I ever used in my long experience of bee raising. PROF. WILL C. STEINBRUNN,
"Principal of Los Gatos School of Apiculture, San Jose Street, Alameda, Calif."

Our Factory is now fully equipped and your order will be shipped immediately on receipt.

Made in Langstroth or Hoffman sizes at 60c per frame, f. o. b., Pasadena. Write for prices on both shallow and Jumbo sizes. Discounts given on large orders.

Booklet "B 1" describing **"MONEYCOMBS"** mailed on request.

## ALUMINUM HONEYCOMB COMPANY

FACTORY AND OFFICE
**Chester and Colorado Streets, Pasadena, California**

# THE FOREHAND FEEDER

This is one of the greatest inventions along this line the bee world has ever known. It is a feeder that it took fifteen years to perfect. It has been in use for nearly twenty-seven years. It is a success, for,

1st. There is no cold feeder in the broodnest or on the outside to start robbing.
2nd. It does not drown or freeze the bees.
3rd. It has two uses.
4th. It is a convenient time saver. You can feed at any time.
5th. It is not an expensive feeder.
6th. It saves labor, feed and bees.
7th. It IS A GOOD FEEDER.

Write for further information.

BEE SUPPLIES—We handle everything the modern beekeeper needs. Write at once and get the big 35 per cent saving on the greatest part of our supplies. Catalog free.

PRINTING—We have a modern printing plant especially equipped to supply the requirements of the beekeeper. Our long experience and up-to-date plant enables us to give you printing of the finest quality, promptly. Write us for further information and prices.

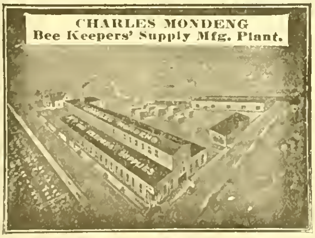
QUEENS—Forehand's Three Bands need no recommendation. For over a quarter of a century they have been pleasing the best beekeepers throughout the world. They are the kind that are **surpassed by none, but superior to many.** They are thrifty, hardy, gentle and beautiful. Write for our special bee circular. Get your order in **now** before the rusn.

POUND BEES—Six thousand pounds is our capacity for the season of 1920. We are now booking orders. After we have booked orders for this amount no more will be received. Get your order in now. Write for circular and prices.

For over a quarter of a century we have been in the bee businesss on an extensive scale. We know the beekeepers' needs and are now in a position to fill them, it matters not what they are.

**W. J. FOREHAND & SONS, The Bee Men**

**Fort Deposit, Alabama**


CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

## A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

**Will take your Beeswax in Trade at Highest Market Price**

**CHAS. MONDENG**

**159 Cedar Lake Road MINNEAPOLIS, MINN.**

EARLY ORDER DISCOUNTS WILL

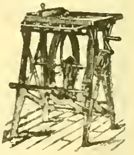
## Pay You to Buy Bee-Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

**LEAHY MFG. CO., 90 Sixth St., Higginsville, Mo.**

**or J. W. ROUSE, Mexico, Mo.**

## BARNE'S Foot Power Machinery



Read what J. E. Parent, of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a douole amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

**W. F. & JOHN BARNES**

**995 Ruby St., ROCKFORD, ILLINOIS**

## BEEKEEPER'S SUPPLIES

**Everything Required for Practical Beekeeping**

Order your supplies now and save money by taking advantage of the early order cash discount. We are prepared to take care of your business; send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and we will mail you one of our new 1920 catalogs when ready.

**AUGUST LOTZ CO.**

**BOYD, WIS.**

**Established 1885**

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

**JOHN NEBEL & SON SUPPLY CO.**

**High Hill, Montg. Co., Mo.**

# BECAUSE IT LASTS

## That is One Argument in Favor of Cypress as a Beekeeper's Lumber

CYPRESS RESISTS ALL ROT INFLUENCES

CYPRESS "THE WOOD ETERNAL"

There are many qualities that make the value in lumber, depending, of course, on the uses to which they are put. But of all virtues that of **endurance** comes first. The wood that resists rot influences longest, especially when the wood is used in a service by which it is exposed to wet and dry conditions and earth contact—that wood is accredited with being able to give the user the greatest INVESTMENT VALUE.

No use tries the lasting qualities of lumber greater than that of Bee Hive construction. It is the very deuce to get lumber that will not too readily rot—unless one gets Cypress lumber. Then there is a good show for endurance that means **real money saved on Repairs You Don't Have to Make.** Try it, Mr. Beekeeper.

## STUDY THE WOOD QUESTION

There's one way to get at this matter of endurance—through books of authority. Such are the 43 volumes of the internationally famous Cypress Pocket Library. These books are not "advertising"—they are authoritative references on file in the libraries of scores of technical schools and National institutes. Ask for Vol. 1 to start with; it contains the complete U. S. Govt. Rept. on Cypress, "The Wood Eternal," and a full list of the other volumes; then branch out until you cover the subject.

**SOUTHERN CYPRESS MFRS.' ASSOCIATION**

1251 Heard National Bank Bdg., Jacksonville, Fla., and 1251 Hibernia Bank Bdg., New Orleans, La.

For quick service address nearest office

# HONEY WANTED HONEY

Write us what you have to offer in extracted or comb. If comb state how packed, graded and quantity. If extracted, state how put up, mail sample and quote your lowest price. We will buy unlimited quantities if price and quality are right.

**C. H. W. Weber & Company**

**2146 Central Avenue** **CINCINNATI, OHIO**

## HONEY, HONEY, HONEY

We are in the market for large quantities of all kinds of white honey. Mail samples and state price asked in first letter.

## "GRIGGS SAVES YOU FREIGHT"

# TOLEDO

How about supplies for next season's use! Why not take advantage of the early order discounts.

**SECOND HAND 60 POUND CANS**

We have a carload or more in cases of two cans, good condition at prices worth your attention.

**THE GRIGGS BROS. COMPANY**

**DEPT. 24** **TOLEDO, OHIO**

"Griggs Saves You Freight"

# WHY?

**To Beekeepers Everywhere:**

It is especially to a new generation of beekeepers that we want to say this. The older beekeepers know it. We are a little proud of it, too. Why is this Company today acknowledged everywhere to be the leaders of the world in the Bee Supply business? It is

## BECAUSE

We have been the pioneers in introducing to the beekeepers of America the best and most important bee appliances in use today. We have hunted for the new things in beekeeping and proved or disproved their worth and practicability. We have spent fortunes in money and years of time in experimenting on beekeeping ideas.

## A FEW EXAMPLES

To mention only a few of these big ideas worked into practical appliances for the beekeeper and so enlarging his possibilities for success, we mention: The Novice Honey Extractor, the Cowan Extractor, the Root Reversible Extractor, the Weed Foundation Process, the Dovetailed Hive, the Hoffman Self-Spacing Frame.

To enlarge on only one of these great benefits to beekeepers, may we draw attention to the fact that we not only make our own latest Root-Weed Foundation Machinery, but we make every machine in the world in which Weed-process foundation is made—and that is practically all of it.

We shall keep going ahead and discovering the new things in bee supplies, just as we have been doing now for 50 years.

## THE A. I. ROOT COMPANY

**MEDINA, OHIO**